Road Infrastructure Safety Management Evaluation Tools (RISMET)

Safety at the Heart of Road Design

Detailed Work Plan

November 2009

Project Coordinator:

SWOV – Institute for Road Safety Research

Project Partner 2:

TUD - Technische Universität Dresden

Project Partner 3:

LNEC - National Laboratory for Civil Engineering

Project Partner 4:

TØI - Transportøkonomisk institutt Stiftelsen Norsk senter for samterdselsforskning

Project Partner 5:

1. TRL - Transport Research Laboratory

Project Partner 6:
KfV - Kuratorium für Verkehrsicherheit

Project Nr. 823137

Project acronym: RISMET

Project title: Road Infrastructure Safety Management Evaluation Tools

RISMET – Road Infrastructure Safety Management Evaluation Tools

Detailed work plan

30.11.2009

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1 PROJECT INFORMATION

Acronym	*RISMET*		
Project title	Road Infrastructure Safety Management Evaluation Tools		
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Organisation	*SWOV*	Country	*Netherlands*
Project Costs (KEuro) (incl. VAT)	334.100	**Requested Funds (KEuro) (incl. VAT)**	334.100
Planned Starting date Planned End date	01/09/2009 31/08/2011	Duration (in months)	24

2 Introduction

The project aims at developing suitable road safety engineering evaluation tools as anticipated by the ERANET Programme "Safety at the Heart of Road Design" (2009) and furthermore those of the Directive for Road Infrastructure Safety Management (2008). These evaluation tools allow the easy identification of both unsafe (from accidents or related indicators) and potentially unsafe (from design and other criteria) locations in a road network. With such evaluation tools estimates of potential benefits at the local and the network level can be calculated and potential effects on aspects such as driver behaviour can be estimated. Such tools empower road authorities to improve their decision making and to implement (ameliorative) measures to improve the road safety situation on the roads.

Since evaluation tools rely on good quality data, RISMET aims at reviewing available data sources for effective road infrastructure safety management in EU-countries, linked to a quick scan and assessment of current practices. This assessment will expand upon what was learned in the RIPCORD-ISEREST project. It will pay specific attention to new developments such as Safe speeds and credible speed limits (NL); Sustainable safety network categorisation and evaluation approaches (NL); Inventory based traffic and safety management schemes (Elvik; Sørensen). Furthermore, RISMET aims at exploiting results related to the development and use of Accident Prediction Models (APMs) in road safety management.

RISMET culminates in a set of easy to use guidelines and codes of practice for the development and use of comprehensive road safety engineering evaluation tools, with a specific focus on APMs. These systems based tools will consider the relationship between road design, road user behaviour, traffic and road safety. A guideline and data specification providing the minimum requirements for data collecting and recording will be included.

This document serves as the detailed project work plan and outlines the core activities to be undertaken by the consortium partners responsible for the execution of the RISMET project.

3 Task overview

RISMET comprises 5 work packages (Table 1), each of which is described in further detail in the following section:

Work package no. and description	Work package leader	Start/ end date	Person months
1 Project management	SWOV	01/09/2009-31/08/2011	
2 Data systems and requirements	KfV	01/11/2009-31/03/2010	5.4
3 Applicability of existing evaluation tools: Review of current practices	TOI	01/11/2009-31/10/2010	4.4
4 Development of evaluation tools for the future	LNEC	01/05/2010-31/03/2011	8.65
5 Guidelines and codes of practice	SWOV	01/03/2010-31/08/2011	6.65

3.1 Work Package 1: Project Management

WP1 defines the specific project goals for the respective work packages, sets out the detailed work plan, monitors the work progress and deadlines, manages the time and costs for the respective tasks and the project overall, co-ordinates and provides financial reports, co-ordinates and reports project progress, co-ordinates activities between tasks, facilitates exchange between the project team and the external project environment, checks and ensures the quality of project outputs and deliverables.

3.2 Work Package 2: Data systems and requirements

At present it is believed that there is a lack of suitable evaluation tools for effective road safety management. However, the development of such tools depends upon the availability of good quality data, something which is often missed when applying these tools at the road authority level for which the tools are developed. It may be seem preferable to develop models that are driven by available data rather than developing models with the hope that these data will be collected and made available. However, it is more likely that a compromise between these approaches will provide a realistic solution. Either way, a review of currently available data (systems) is essential to assess the feasibility and ultimately the potential for the envisaged evaluation tools. Such a review will take into consideration aspects such as the costs for data collection and analysis, the required quantity and quality of data, the benefits and disadvantages, and other related aspects such as data collection methods, reporting etc.

The intention of WP2 is to develop the data and system requirements necessary to support the development of (future) evaluation tools required to effectively manage road safety in EU countries. This will be based on an extensive literature review and supplemented by a questionnaire survey among national road authorities and among road safety research organisations in member EU countries. The literature review will define the state of the art regarding road and traffic based data inventories and information systems such as HSIS and

Molasses. Extensive use will be made of the TRLs' knowledge database (one of the world's most comprehensive collections of transport books, journals and reports) supplemented by the extensive knowledge networks of the other partners in the consortium.

The questionnaire survey among European road authorities and stakeholders will be conducted under the auspices of ERA-NET and concentrate on establishing the status quo regarding road network data, road traffic data, road accident data and data related to driver behaviour (enforcement levels, compliance rates, etc.). The purpose of the survey is to establish a baseline of available data, its use, how it is captured and stored, how often it is updated, problems associated to collection and management, future needs etc.

This WP will result in an inventory of available data on road accidents, road network geometry, traffic (volumes, speeds, vehicle classification etc.). The review will include an assessment of the data (reliability, coverage, cost etc.) and the manner in which it is reported and recorded. The potential application of this data and these systems in view of the (future) development of road safety engineering evaluation tools will be explicitly addressed.

WP2 comprises the following 4 tasks (see also appendix 1):

2.1 Data requirements and variables

This task aims to identify the type of data that is necessary to develop state-of-the-art evaluation tools for infrastructure management. It will describe the kind of information that is necessary to answer traffic safety related questions. The categories of data that will be considered include:

- Accident data
- Congestion data
- Hospital data
- In-Depth data
- Road (design) parameters
- Road user behaviour
- Weather data

This task will deploy a meta analysis aimed at combining the results from relevant studies to determine whether relationships are evident. The primary input will be a literature survey which ultimately will provide a list of traffic safety related questions and describe the required variables necessary in evaluations of this nature.

2.2 Databases and information systems

A number of countries have (started to) set up databases containing information regarding road accidents, traffic volume, road geometry etc. The objective of this task is to explore the added value of integrated object-oriented road databases for safety work. Such databases consist of data on various road elements and specific information on road and site characteristics. Among others, the research database of SWOV, the American Highway Safety Information System (HSIS), GIDAS (D), the rural road database of the TU Dresden, Molasses (UK) etc. are to be considered. This task will entail primarily a literature survey supplemented by questionnaire surveys among road authorities and research organisations and (personal/telephonic) interviews with selected specialists in this field. The primary output is a documented description of database structures.

2.3 Data availability and description

This task will provide a review of available road based data in EU countries and including:

- Type of data collected and by whom
- Description of the data set
- Methodology used to collect the data
- Quality of the data (Classification)
- Costs to purchase data

These will be inventoried on the basis of questionnaire surveys among European road authorities (see also task 2.2). The results will be provided on data road maps and data information sheets. A report providing an overview of current data and data collection systems will be prepared.

3.3 Work Package 3: Applicability of existing evaluation tools: Review of current practices

Generally (safety engineering) evaluation and management tools have been developed for specific applications and may therefore not be suitable for wider application (i.e. across country borders) without major changes or amendments. However, a number of related tools (such as road safety audits, road safety impact assessment, Road Protection Score etc.) which are not all by definition evaluation tools, have been applied in numerous countries across Europe (see Ripcord-Iserest). However, an evaluation of the available tools, and more importantly a comparison of these in terms of their applications and capabilities has not been conducted.

This Work Package intends to provide a complete as possible overview of engineering tools and applications for the management of road safety of rural roads at the local to network level. This overview concentrates on tools and applications that estimate the road safety (accident) effects (accidents, behaviour, conflicts, perception etc.) of individual or combined engineering improvements (safety improvements/remedial or new). The overview will be based on a limited quick scan supplemented by a (internet based) questionnaire survey among European road authorities and engineering practitioners/consultants. The quick scan review will make extensive use of the results of Ripcord-Iserest and similar studies.

A questionnaire will be drawn up and distributed (via Internet) among all national road authorities, research organisations and a sample of leading consulting engineers in member EU countries. The purpose is to obtain relevant information relating to the type of (road safety engineering) evaluation tools currently in use and including the application and purpose, the data (input) requirements, general data availability, the output and analyses capabilities, the limitations, the assumptions underlying the models, etc. The questionnaire will be based on a list of assessment criteria developed by the project team, in consultation with the Programme Executive Board and a number of National road authorities.

The criteria for assessing the applicability of the evaluation tools will include:

- Data requirements
- Availability of standardised procedures
- Reporting requirements
- Need for training and specialised skills

- Objectivity and transparency
- Ease of updating tool and results based on it

To achieve the overall objective of this WP, namely to assess the applicability of existing tools for evaluating the safety of roads, based on a set of criteria developed in the project and a brief survey of the current use of evaluation tools in Europe, requires the following (sub) tasks to be performed:

1. Developing an inventory of assessment tools used for evaluating the safety of roads. And providing a brief description of each tool.
2. Developing criteria for the applicability of assessment tools.
3. Draft of questionnaire to road administrations based on points 1 and 2.
4. Circulation of questionnaire
5. Analysis of answers to questionnaire
6. Draft report

The final product from WP3 will be a state of the art review report of engineering tools and applications currently used for road safety infrastructure management in EU member countries.

3.4 Work Package 4: Development of evaluation tools for the future

In the event of road infrastructure planning or improvement projects, road safety impacts are generally estimated from combinations of historic accident data, (before and after) observational studies, experience and/or expert judgement. However, managing road safety requires a more fundamental understanding of the variables affecting accident occurrence. Furthermore, the ability to estimate or predict the road safety performance of a specific road or even a network of roads given a certain set of design and operational criteria is becoming a real need among road authorities. This need cannot be totally met by traditional approaches. Next to approaches such as safe and credible speed limits and inventory based traffic and safety management schemes, Accident Prediction Models (APMs) are also seen to offer a solution to this problem. Based on the outcomes of WP3, existing and potentially new approaches will be assessed for applicability in the future safety management of European road infrastructure. This assessment will be based on a detailed analysis of current applications and where possible supplemented by a limited number of pilot evaluations using the same country data as input in the different tools to assess their merits. However, the focus of WP4 will be on a detailed study on the application of APMs as evaluation tools for road infrastructure safety management.

Work Package 2 of RIPCORD-ISEREST recommended that EU countries develop basic APMs for various road types. Road design variables and also variables describing driving behaviour needed to be included in such APMs. Previous APMs consisted mostly of only road design variables; adding variables which describe driving behaviour will cover the influence of these on road safety. Models incorporating driving behaviour have been successfully developed (e.g. Germany, Portugal) and used in the evaluation of key safety issues (such as dangerous curvature). In the framework of the project RIPCORD-ISEREST (work package 10) the integration of driving behaviour was accomplished by integrating a speed prediction model to analyse and evaluate the road safety of networks. This approach bases the impact of the horizontal alignment on driving speed.

To ensure synergy at a European level, this Work Package strives to bring together the

collective research efforts in Europe. A methodology for the development of APMs will be formulated and documented. This will include the strengths and the weaknesses of the available approaches adopted in building such models. The results of the work will be documented in separate country research reports. These will be one of the primary inputs for the development of a subsequent guideline document (see Work Package 5).

The overall objective of WP 4 is assessing the applicability of different methods for safety evaluations and developing suitable evaluation tools (including Accident Prediction Models for rural roads) for European road authorities and road safety practitioners. To achieve this, the following tasks will be carried out:

1. Check applicability of existing safety evaluation methods according to criteria defined in WP3 (“good practice” criteria)
2. Agree on existing methods to test and select which methods will be applied in each country
3. Preparatory works
4. Adapting methods for testing countries
5. New combination of existing APM and tools
6. New APM – recalibration
7. Model application and reporting
8. Summarize findings and draft procedure for APM development / recalibration for application in other geographical areas / other road networks. 5/6 country reports + overall/summary report

3.5 Work Package 5: Guidelines and codes of practice

This Work Package brings together the results from different studies conducted in WP 2 to 4. These results will be employed to draft easy to use guidelines including:

1. A document providing an overview of the supporting data system as outlined in WP 2, provide a specification of the data requirements, describe a uniform methodology to collect road geometric data and traffic volumes, and provide insights into use of the various data (sources) in analyses.

   It will describe methodologies for data acquisition (sampling and inference methods, calculation of sample sizes to gain statistical significant results, computation of AADT from short-term observations etc.) and this will be based on the results from the foregoing activities, including a review of the sourced literature. The outcome of this task will be a documented data requirement specification which will form the basis for drafting the guidelines and specifications document (Deliverable 2 of the DOW of August 2009).

2. A document for developing and applying evaluation tools in road infrastructure safety management, with a focus on APMs, for European road authorities. This document will be a state of the art outlining all aspects related to the development, application and future of such tools. The document brings together the knowledge and experience of various countries and presents a common approach for evaluating the effects of road safety engineering measures and treatments.

Additionally, possible research opportunities resulting from this work will be identified and recommendations regarding the future direction of evaluation tools such as APMs and their application will be made and submitted to the Programme Executive Board.

4 Dissemination

A primary objective of the ERA-NET call is improving and increasing awareness and acceptance of road authorities in implementing road safety solutions. To this end this proposal aims at developing suitable evaluation tools that support the recently adopted Directive and assist road authorities in identifying and implementing effective, sustainable and cost effective solutions. This proposal has been structured around the active participation of road authorities and potential users of such tools. To ensure continual participation, a project website will be set up under the auspices of ERA-NET and regularly updated to reflect the latest developments and results. This will be communicated to the road authorities as part of the questionnaire surveys discussed in the Work Plan. Furthermore, a number of road authorities will be selected to act as an external user group, representing the external market and bodies such as ERA-NET and CEDR. In addition these members will be asked to act as referees of the guideline documents that will be developed as part of this project. These parties will be contacted once the project commences and be asked to provide ideas and input in the proposed work plan. To conclude the project, a one day seminar or symposium will be held during which the results will presented to external stakeholders and interested parties.

4.1 Exploitation of results

RISMET furthers the work started in RIPCORD-ISEREST by bringing together this expertise and providing the platform on which to continue research and development through active co-operation, information sharing and capacity building. This will ultimately provide European road authorities and road safety engineering practitioners with the necessary tools for safely managing their road infrastructure as required by the recently published EU Directive. The Directive stipulates a number of requirements without providing a comprehensive set of tools. RISMET aims at facilitating this by providing the road authorities with a tool kit with which road safety on the European (TEN) road network can be better managed and reported. RISMET is aimed at providing evaluation tools for the rural road network and this goes further than what the Directive aims at, namely the primary (TEN) network. To ensure that RISMET is successful, a first requirement would be that national road authorities make use of the RISMET tool kit. This can be achieved through organisations such as CEDR/ERANET.

A pre-requisite for the effective management of road safety on the road network is good quality data to support the use of evaluation tools. In consultation with European road authorities, RISMET will provide the basis for defining these data requirements in appropriate guidelines. Furthermore, guidelines on evaluation tools for road infrastructure safety management will be drafted. These will be based on best practices and supplemented by the development and assessment of new tools such as APMs and network safety management approaches as discussed in this proposal. Through bodies such as ERANET and CEDR road authorities will be requested to apply the guidelines. It is proposed that ERANET implement a monitor to assess the state of application and to identify and address problems should these occur in future. Guidelines are not static documents and need periodic revision and therefore a monitor is paramount to ensure that shortcomings are addressed in future versions.

Evaluation tools such as Accident Prediction Models are ideal instruments to assess the road safety potential of new and future road infrastructure schemes. By developing unique APMs for various sets of disaggregated road design parameters, road authorities can apply a

variety of models to a range of designs and estimate the road safety potential of a scheme or even a network of roads. The variables describing driving behaviour in the APMs will increase the value of the APMs by better reflecting the reality. These models can be refined to incorporate certain geometric design and/or driver behaviour elements in which case the road authority has the further advantage of being able to test the road safety effect by varying certain parameters. APMs are used for predicting/estimating the safety performance of road networks or parts thereof. APMs can also be useful in benchmarking studies. Once developed, they can be relatively easily applied to estimate the road safety performance of different road categories in a country. Provided a uniform basis is followed in the development of the models, these results can be used in cross-European benchmarking exercises to identify both high risk road sections and sections with high safety potentials according to actual risk figures.

Current Network Safety Management (NSM) approaches (such as the German "Guidelines for Safety Analysis of Road Networks (ESN)" and the French “User Safety on the Existing Road Network (SURE) procedures) use basic accident cost densities calculated for whole road stretches for the identification of stretches with safety potential. The further development and sophistication by using APMs could enhance the process of identifying road stretches with safety potential.

Ultimately, the primary end users are the road authorities in the member countries. By improving the management of the road safety problems on their road networks, road authorities will be able to more effectively implement remedial treatments leading to a safer road network for road users. Other potential beneficiaries include researchers, scientists and engineers active in the area of road safety infrastructure management and also traffic and safety engineering.

5 Project time schedule and deliverables

Work package no. and description of primary tasks	Responsible parties	Start-end dates
1 Project management	SWOV/KfV/LNEC/TOI	01/09/2009 – 1/8/2011
Project work plan (deliverable 1)	SWOV	01/11/2009
1.1 External user group	SWOV	01/01/2010
1.2 General Project Meetings	ALL	6/2010; 6/2011
1.3 Steering Committee meetings	SWOV	10/2009; 4 & 11/2010; 4 & 8/2011
1.4 Progress monitoring reports	SWOV	11/2009; 4&11/2010; 9/2011
1.5 Project Website	SWOV	01/01/2010 - 01/09/2011
1.6 ERA-NET seminar		15/08/2011
2 Data systems and requirements	KfV	01/11/2009 – 31/03/2010
2.1 Data requirements and variables	SWOV/TRL/TOI	01/11/2009 - 24/01/2010
2.2 Databases and information systems	TUD/KfV	01/11/2009 – 24/01/2010
2.3 Data availability and description	KfV/All	24/01/2010 – 07/03/2010
2.4 Reporting (Deliverable 2)	KfV	01/03/2010 - 31/03/2010
3 Applicability of existing evaluation tools:		
Review of current practices	TOI	01/01/2010 - 31/10/2010
3.1 Inventory of assessment tools	TOI/All	01/11/2009 – 28/02/2010
3.2 Criteria for applicability of tools	TOI/All	01/01/2010 – 31/03/2010
3.3 Draft questionnaire	TOI/All	01/03/2010 – 31/03/2010
3.4 Questionnaire survey	TOI	01/04/2010 – 31/05/2010
(overview of evaluation tool, Deliverable 4)		30/06/2010
3.5 Analysis	TOI	01/06/2010 – 31/10/2010
3.6 State of the Art Report (Deliverable5)	TOI	31/10/2010
4 Development of evaluation tools for the future	LNEC	01/05/2010 – 31/03/2011
4.1 Applicability of evaluation methods	LNEC/All	01/05/2010 – 30/06/2010
4.2 Selection of methods	LNEC/All	01/06/2010 – 31/07/2010
4.3 Adapting methods	LNEC/TUD/SWOV	01/07/2010 – 31/08/2010
4.4 Apply methods	LNEC/All	01/09/2010 – 28/02/2011
4.5 Country reports (Deliverable 6)	LNEC/All	01/03/2011 - 31/03/2011
5 Guidelines and codes of practice (Not in Appendix)	SWOV	01/12/2010 – 31/08/2011
5.1 Data requirement guidelines and specifications (Del. 3)	SWOV/KfV/All	01/03/2010 - 31/05/2010
5.2 Road safety infrastructure management guidelines (Del. 7)	SWOV/LNEC/All	01/03/2010 – 31/08/2011

5.1 List of Milestones

Nr.	Milestones	Due date
1	External user group	01/01/2010
2	Project website	01/01/2010
3	Survey on current data and data collection systems	28/02/2010
4	Data requirements for road network inventory studies and road safety evaluations	30/04/2010
5	Overview of evaluation tools for road safety infrastructure management in the EU	31/05/2010
6	Assessment and applicability of evaluation tools	31/10/2010
7	APM for rural roads and intersections	28/02/2011
8	Evaluation tool guidelines	31/08/2011
9	ERA-NET seminar on evaluation tools	15/08/2011

5.2 Personnel planning

Work package no. and description of primary tasks	Partners and Person months (1 month =120h)					
	Swov	KfV	TOI	LNEC	TUD	TRL
1 Project management (SWOV) Project work plan (deliverable 1) 1.1 General Project Meetings 1.2 Steering Committee meetings 1.3 Progress monitoring reports 1.4 ERA-NET seminar	Included in Work packages					
2 Data systems and requirements (KfV)	1,2	1,7	0,2	0,2	0,5	0,6
2.1 Data requirements and variables (SWOV)	0,8	0,6	0,1			0,3
2.2 Databases and information systems (KfV)		0,5			0,3	
2.3 Data availability and description (KfV)	0,4	0,4	0,1	0,2	0,2	0,3
2.4 Reporting (Deliverable 2		0,2				
2.5 Project Website	1,0					
3 Applicability of existing evaluation tools: (TOI) Review of current practices 3.1 Inventory of assessment tools 3.2 Criteria for applicability of tools 3.3 Draft questionnaire 3.4 Questionnaire survey (overview of evaluation tool, Deliverable 4) 3.5 Analysis 3.6 State of the Art Report (Deliverable5)	0,8	0,7	1,5	0,5	0,5	0.4
4 Development of evaluation tools for the future (LNEC) 4.1 Applicability of evaluation methods 4.2 Selection of methods 4.3 Adapting methods 4.4 Apply methods 4.5 Country reports (Deliverable 6)	1,7	1,0	0,15	3,5	2,0	0,3
5 Guidelines and codes of practice (SWOV	4,0	0,8	0,15	0,8	0,5	0,4
5.1 Data requirement guidelines and specifications (Del. 3)	1,0	0,5	0,05	0,3	0,2	0,1
5.2 Road safety infrastructure management guidelines (Del. 7)	3,0	0,3	0,1	0,5	0,3	0,3

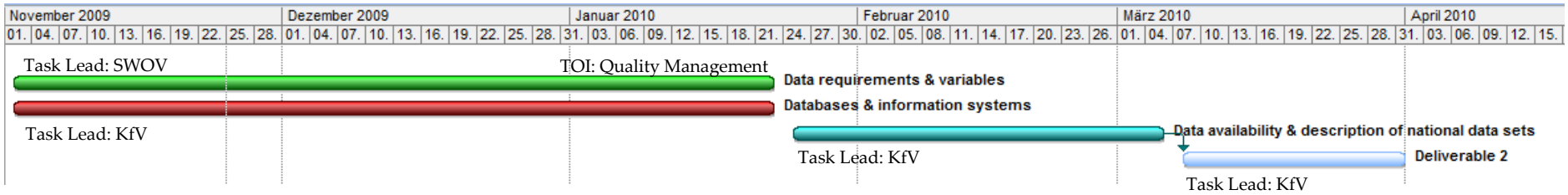
APPENDICES: WORK PLANS BY WORK PACKAGE PARTNERS

RISMET WP2 – Data systems and requirements: Description of Work

TASK	CONTENTS	DESCRIPTION OF THE WORK	WP	METHODOLOGY	RESULTS	PARTNERS & PM (h)
2.1: Data requirements & Variables	What kind of data/information is needed to develop state-of-the-art evaluation tools for infrastructure management? No single set of data is sufficient to answer every task at hand. Different (sub-) sets of information are needed, regarding the respective project objective.	One of the main results of this task is to describe what kind of information is needed to answer traffic safety related questions. Categories of data to be considered are: • Accident data • Congestion data • Hospital data • In-Depth data • Road (design) parameters • Road behaviour • Weather data • etc.	2	Literature survey (Meta Analysis), Results of research projects etc.	• List of traffic safety related questions • Description of the (alleged) relationship • Variables and data requirements necessary to answer these questions	Task Lead SWOV: 0,8 PM/96 h Partners TRL: 0.6 PM/72 h TOI: 0.2 PM/24 h ⇒ Quality Management
2.2: Databases & Information Systems	A number of countries have (started to) set up databases containing information regarding road accidents, traffic volume, road geometry etc.	Description of the structure of so called object oriented databases. Among others, the research database of SWOV, the American Highway Safety Information System (HSIS), GIDAS (D), the rural road database of the TU Dresden, Molasses (UK) etc. are to be considered. The objective of this task is to explore the added value of integrated object-oriented road databases for safety work. Such databases consist of data on various road elements and specific information on road and site characteristics.	2	Literature survey, Friendly visits (interview) and questionnaires	Description of database structures	Task Lead KfV: 1,1 PM/132 h Partners TUD: 0.5 PM/60h
2.3: Data availability & description of national data sets	Review of currently available data	• Data availability (What kind of data has been already collected by whom) • Description of the data set • Methodology used to collect the data • Quality of the data (Classification)	2	Friendly visits (interviews) and questionnaires	• Data Road Maps (graphical visualisation of the data availability within ones country & contacts)	Task Lead KfV: 0.6PM/72h LNEC 0.2pm SWOV:0.4 TOI 0,1pm TRL 0,3pm TUD 0,2pm

		• Costs to purchase data • etc.			• Data Info Sheet (detailed description of the data & screenshots)	
Data requirements	Definition and development of a uniform methodology for collecting, integrating and analysing road accident, traffic, road geometry, environmental and road user behaviour data	• Methodologies for data acquisition (sampling and inference methods, calculation of sample sizes to gain statistical significant results, computation of AADT from short-term observations etc.)	5	Literature review	Manual and Guidelines	All

Gantt-Chart of RISMET- WP2



1.1 RISMET

1.1.1 WP 3: Applicability of existing evaluation tools: Review of current practices

Start: 2010-01-01

End: 2010-10-31

Overall objective:

To assess the applicability of existing tools for evaluating the safety of roads based on a set of criteria developed in the project and a brief survey of the current use of evaluation tools in Europe. The evaluation tools that will be included in the assessment are road safety audits, road safety inspections, systems for impact assessment of road investments, accident prediction models, road protection scoring systems, monitoring of road user behaviour, conflict studies, systems for identifying hazardous road locations, analysis of accidents at hazardous road locations.

Method:

A brief questionnaire will be developed to survey current use of the assessment tools listed above. The questionnaire will be circulated to road administrations in Europe.

Criteria for applicability:

The applicability of a certain evaluation tool will be assessed in terms of the following criteria, all of which need to be developed more in detail by the project team:

- Data requirements
- Availability of standardised procedures
- Reporting requirements
- Need for training and specialised skills
- Objectivity and transparency

- Ease of updating tool and results based on it

Steps:

Work can be divided into the following main steps (subtasks):

1. Developing an inventory of assessment tools used for evaluating the safety of roads. Brief description of each tool.
2. Developing criteria for the applicability of assessment tools.
3. Draft of questionnaire to road administrations based on points 1 and 2.
4. Circulation of questionnaire
5. Analysis of answers to questionnaire
6. Draft of report

Participation of partners in tasks:

The following table specifies which partners will take part in the various tasks of the work package:

Task	Partners
1	All
2	All
3	All
4	TOI
5	TOI
6	TOI (comments from all partners)

The following contributions are foreseen from each partner:

Partner	Man months
SWOV	0.8
TUD	0.5
LNEC	0.5
TOI	1.5
TRL	0.4
KfV	0.7
Total	4.4

The various tasks are budgeted as follows:

Task	Man months
1	0.7
2	0.7
3	0.5
4	0.5
5	0.5
6	1.5

WP 4 – Development of evaluation tools for the future

Start: 2010-05-01

End: 2011-03-31

Overall objective:

Assessment of the applicability of different methods for safety evaluation. Development of evaluation tools, including APM for rural roads

Method:

Apply several evaluation tools in various countries

- Develop new APM
- Combine existing APM and Observed accident data in assessment of current situations
- New combination of existing APM in assessment
- Existing procedures, not using explicit APM

Steps:

1. Check applicability of existing safety evaluation methods according to criteria defined in WP3 (“good practice” criteria)
2. Agree on existing methods to test and select which methods will be applied in each country
3. Preparatory works
    a. Adapting methods for testing countries
    b. New combination of existing APM and tools
    c. New APM – recalibration
4. Model application and reporting
5. Summarize findings and draft procedure for APM development / recalibration for application in other geographical areas / other road networks. 5/6 country reports + overall/summary report

Participation:

Step	Partners	Task
1	LNEC All	Apply criteria Comments
2	All	Discussion; selection of methods
3	LNEC TUD SWOV All	Adapting existing methods ; new combination of existing APM ; recalibration Collect data for methods application
4	All *	Apply methods
5	All * LNEC	Draft country report Draft summary report

* Feasibility of TRL and TOI participation in steps 4/5 needs to be confirmed. (In the negative case, alternative ways will have to be devised)

- Person month per partner:
  - SWOV 1.70
  - LNEC 3.50
  - KfV 1.00
  - TOI 0.15
  - TRL 0.30
  - TUD 2.00

Time frame:

Step	Time
1	0.25 M
2	0.75 M
3	6 M
4	2 M
5	1 M