Deliverable 5.1: Fatal Data Methodology Development Report

Contract No: TREN-04-FP6TR-SI2.395465/506723
Acronym: SafetyNet
Title: Building the European Road Safety Observatory

Integrated Project, Thematic Priority 6.2 "Sustainable Surface Transport"

Project Co-ordinator:
Professor Pete Thomas
Vehicle Safety Research Centre
Ergonomics and Safety Research Institute
Loughborough University
Holywell Building
Holywell Way
Loughborough
LE11 3UZ

Organisation name of lead contractor for this deliverable:
Vehicle Safety Research Centre, Ergonomics and Safety Research Institute, Loughborough University

Due Date of Deliverable: 31/10/2005

Submission Date: --/--/----

Report Author(s): Dr C Brace, VSRC

Project Start Date: 1st May 2004 **Duration:** 4 years

Project co-funded by the European Commission within the Sixth Framework Programme (2002 -2006)		
Dissemination Level		
PU	Public	✓
PP	Restricted to other programme participants (inc. Commission Services)	
RE	Restricted to group specified by consortium (inc. Commission Services)	
CO	Confidential only for members of the consortium (inc. Commission Services)	

Project co-financed by the European Commission, Directorate-General Transport and Energy

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Executive Summary

At present, there are some 50,000 fatally injured road users each year throughout the 25 EU Member States. A core element of the EC road safety strategy includes a reduction of fatalities by 50% by the year 2010. Central to this strategy is the requirement for good quality in-depth accident data. Such data are seen as a fundamental pre-requisite for the formulation and monitoring of road safety policy in the EU. Data are needed to assess the performance of road and vehicle safety stakeholders and are needed to support the development of further actions. A recent analysis conducted by the European Transport Safety Council[1] identified that no single accident database could meet all of the needs and that there were major gaps including in-depth accident causation. Specific policy questions at EU level involve the role of road infrastructure in accident causation, the monitoring of progress towards the 2010 targets and the improvement of vehicle design and performance in accident and injury causation.

Task 5.1 of the Work Package will use existing infrastructure where possible to develop a broad ranging, intermediate level, fatal accident database. The dataset will be systematically selected according to a defined sampling plan and the data will be representative of the countries in which the data are collected.

The data is predominantly being derived from the police records of fatal accident investigations. The data recorded will describe the environmental factors, vehicle and driver factors to provide a description of the whole crash. The data variables have been determined and the database developed. A pilot and review activity will take place before the main data collection phase commences where the data will be gathered and recorded onto the database. The main data collection period will investigate a representative sample of between 2% and 10% of the fatal crashes in each country covered, depending on the magnitude of the fatal population, resulting in approximately 1300 fatal accident cases being collated and analysed. The information provided in the database will contribute a major advance of the knowledge of fatal accidents at EU level and tie in with the EU targets for fatal accident reduction.

[1] EU transport accident, incident and casualty databases: - current status and future needs, ETSC, Brussels 2001

Transport
Project co-financed by the European Commission, Directorate-General Transport and Energy

Chapter 1: Introduction and background to the task

1.1 The current situation with this type of data collection

The persistent lack of accident and causation data to help inform and monitor road and vehicle safety policy is a major requirement at EU level. Data are needed to assess the performance of road and vehicle safety stakeholders and are needed to support the development of further actions. A recent analysis conducted by the European Transport Safety Council[1] identified that no single accident database could meet all of the needs and that there were major gaps including in-depth accident and injury causation. Specific policy questions at EU level involve the role of infrastructure in accident causation, the monitoring of progress towards the 2010 targets and the improvement of vehicle and road design and performance in accident and injury causation.

Work-package 5 (WP5) of the SafetyNet Integrated Project addresses the need for a range of in-depth accident data and will provide two road accident databanks which deal specifically with the causation of accidents. It will also attempt to meet the requirement under the eSafety initiative for its own in-depth accident causation database, and to tie in with existing European projects where harmonies exist, including the European Truck Accident Causation (ETAC) study, and the Human Centred Design for Information Society Technologies (HUMANIST) Network of Excellence.

Task 5.1 of the Work Package will use existing infrastructure where possible to develop a broad ranging, intermediate level, fatal accident database. The information provided in the database will contribute a major advance of the knowledge of fatal accidents at EU level and tie in with the EU targets for fatal accident reduction. The dataset will be systematically selected according to a defined sampling plan and the data will be representative of the countries in which the data are collected.

It was proposed that the data would be derived from the police records of fatal accident investigations but will record strictly factual data only. The data recorded will describe the environmental factors, vehicle and driver factors to provide a description of the whole crash. The level of detail recorded will be considerably greater than is obtainable in the CAREPLUS 2 specification; around 100 – 150 variables with 500+ items of data will typically be gathered. Specific areas of data will describe the overall accident circumstances, driver and vehicle characteristics, specific road infrastructure features, and descriptions of other crash participants. A pilot and review activity will take place before the main data collection phase commences where the data will be gathered and recorded onto the database. The main data collection period will investigate a representative sample of between 2% and 10% of the fatal crashes in each country covered, depending on the magnitude of the fatal

population. It is anticipated that 1300 fatal accident cases, involving at least 1 fatality per accident, will be collated and analysed.

1.2 Project objectives

Work Package 5 (WP5) officially commenced with the start of the SafetyNet IP on 1st May 2004. The aim for the first 12 months of the WP 5 Task 1 project was to develop the methodologies and commence protocols for an intermediate level fatal accident study, primarily directed to support road and vehicle safety policy.

The project is being developed with close attention to the following objectives:

To set up the building blocks for a continuous European process of fatal accident data collection, coding and analysis
The main purpose of Task 5.1 is to build an effective data gathering structure, involving all of the relevant partners, to ensure that specific data on fatal crashes can be gathered in a systematic and routine manner. The data should be collected in a number of EU member states using completely compatible methods although there may be variations between teams according to differences in local infrastructure. The data itself will be of an intermediate level of detail but covering a representative sample of fatal crashes in each country. There will be no new investigations but teams will bring together available information from within the existing police and other emergency services structure.

To create a broad ranging, intermediate level, fatal accident database
The data recorded will describe the environmental (including road infrastructure, e.g. crash barriers, road signs etc.), vehicle and driver factors to provide a description of the whole crash (for example, similar to FARS[2] database and Stats19[3]). We expect around 100 – 150 variables in total for each case (accident/vehicle/ occupant/other records) to include around 500 pieces of information per case. The data will not be selected according to a "lowest common denominator" approach; instead partners will be challenged to gather a variety of information types. Examples of difficulties might be driver licensing, previous driving convictions, alcohol and other information. The support of the National Experts groups might be beneficial in smoothing the links within member states. Additional interpretative information might also need to be included and a basic list of causation factors has been proposed. To support the concept of integrated datasets it might be useful to consider the value of incorporating selected 5.1 fields into the 5.2 protocol.

[2] FARS (Fatal accident reporting system) is the American system for recording information about a fatal road accident. More information is available here: http://www-fars.nhtsa.dot.gov/
[3] Whenever they are informed of, or attend a road accident in which someone is killed or injured, the UK police complete an accident report. After verification of the information, it is transferred to a Stats19 form for input to the accident database of that police force. Data is used from Stats19 at a local level by engineers who look for indications of causation to design remedial measures, and nationally by policy-makers.

To create an independent data set (collected by unbiased parties)
Care will need to be taken when interpreting information gathered from within the judicial process where the attribution of blame is a primary objective. For example, the discussions over the ETAC project indicate the importance of data quality and validation, which should be included in both parts of WP 5 at an early stage. Discussions within WP4 have also demonstrated the importance of independence.

To create a widely accessible data set, which ends up online as aggregated (summary) cases (similar to the CARE system)
The WP 5 partners and the WP 6 team will need to work closely together to devise the best approach for this.

To use the information collected to inform and monitor road and vehicle policy at EU and national level
The data from the fatal accident study are required for a variety of reasons. First and foremost, the data are needed to provide the EC with data that can be used in decision making for road safety policy and regulation. Therefore, some fundamental questions need to be addressed for example:

- Which road users are killed
- What are the circumstances
- What are the countermeasures

It is anticipated that the data could be used by a multitude of stakeholders in the road transport system but specifically road infrastructure experts, highway engineers and vehicles designers. The data should be used to evaluate trends and to conduct inter-country comparisons where possible. There could be a link to national activities since most safety actions take place under subsidiary concerns.

1.3 Project teams

The data collection areas for the accidents will be from the countries with the largest fatality populations in Europe (Italy, France and Germany) as well as northern (Sweden, Finland) and middle European (UK, Netherlands) countries. Independent groups with no interest in commercial aspects of the study outcomes will conduct all data gathering and accident investigation activities, listed below and detailed in Figure 1:

- Vehicle Safety Research Centre (VSRC), Loughborough University, UK (co-ordinators)
- Netherlands Organisation for Applied Scientific Research (TNO), Delft, Netherlands
- Institut National de Recherche sur les Transports et leur Sécurité (INRETS), Lyon, France
- Chalmers University of Technology (Chalmers), Gothenburg, Sweden

- Accident Research Unit at Medical University Hanover (ARU-MUH), Hanover, Germany
- The Finnish Motor Insurers' Centre (VALT/FMIC), Helsinki, Finland
- Department of "Idraulica, Trasporti, Strade", University of Rome (DITS), Rome, Italy

Figure 1 Map indicating WP5 partners and their locations

1.4 Scheduling of project

The main sub-tasks to be conducted within this Task are detailed in this section. The status of activities is indicated by the words: *Complete, Ongoing or Future Activity,* at the time of submission of this document (31st October 2005).

5.1.0 Co-ordination activities and general project management *(Ongoing)*

5.1.1 Evaluation of data gathering possibilities *(Complete)*
The level of support from police, local and national administrations relating to access to current and recent fatal crashes will be evaluated. Specific issues to be addressed locally e.g. legal, personal data, administrative and ethical considerations will be identified.

5.1.2 Sampling criteria and methodology determination *(Complete)*
Specification of sampling region and criteria and specific data gathering methods. Develop statistical methods and sampling methodology and

implement in each data collection region to ensure compatibility and linkage to national accident population (CARE).

5.1.3 Infrastructure *(Complete)*
Implementation of local infrastructures with links to police and other national authorities.

5.1.4 Protocol development *(Compete)*
Development of crash investigation protocols, data collection forms, and database system for storage, quality assurance and analysis. Specific areas of data will describe the overall accident circumstances, driver and vehicle characteristics, specific infrastructure features, and descriptions of other crash participants. The level of detail recorded will be considerably greater than is obtainable in the CAREPLUS 2 specification; around 100 – 150 variables with 500+ items of data will typically be gathered.

5.1.5 Team training *(Complete)*
Develop and present training course for data gathering groups to ensure harmonised, compatible procedures for gathering of data.

5.1.6 Pilot data gathering phase in each area *(Ongoing)*
Over a 2-month period, a trial data gathering exercise will be used to examine the viability of each local system and to validate overall methodologies and procedures. The pilot phase will also determine the final costs per case and the total case numbers to be gathered in the later part of the IP will be fixed.

5.1.7 Review of procedures *(Future Activity)*
Assess proposed data gathering practises, make amendments to procedures. Milestone before main data collection phase.

5.1.8 Full data collection *(Future Activity)*
Data collection activities in progress by all partners. It is anticipated that around 1300 sets of fatal accident data will be gathered over one year and entered onto a database. All data available to the public will be anonymous respecting the privacy laws of Member States. The breakdown of case investigated by each partner is shown in Table 1 below.

5.1.9 Data analysis and final report *(Future Activity)*
Upon complete data collection, data analysis and reporting will take place in accordance with the designated plan of action developed inline with EC priorities. The independent fatal accident database will primarily be directed to policy support in the areas of responsibility of the EC and there will be a dialogue to ensure that their needs are being addressed.

Table 1 Breakdown of partners' accident cases

Partner	Fatal accident cases, 1 year data collection
Chalmers	125
DITS	480
INRETS	140
MUH	174
TNO	50
VALT	60
VSRC	270
Total	**1,299**

Meetings held

July 2004	Brussels	Kick off meeting
October 2004	Brussels	Technical meeting
February 2005	Lyon	Technical meeting
March 2005	Brussels	Technical meeting
June 2005	Mykonos	Technical meeting
October 2005	Gothenburg	Technical meeting and training

Meetings planned

February 2006	Delft	Technical meeting
June 2006	Hannover	Technical meeting
October 2006	Helsinki	Technical meeting

SafetyNet - Gantt chart WP5

Task	Partners Man-Months							
Project 5 - In-depth accident and injury databank	VSRC	Chalmers	DITS	INRETS	MUH	TNO	VALT	TOTAL
WP 1 - Fatal Accident Database								
5.1.0 - WP co-ordination								
5.1.1 - Evaluation of data gathering possibilities	2.2	1	1	0.5	1	0.1	0.25	**6.05**
5.1.2 - Sampling criteria & methodology determination	2.2	1	0.5	0.5	1	0.1	0.25	**5.55**
5.1.3 - Infrastructure	1	0	1	0.5	1	0.6	0.25	**4.35**
5.1.4 - Protocol development (including database)	3.3	1	1.5	3	4	0.3	0.25	**13.35**
5.1.5 - Team training	3.5	2	0.5	0	2	0.4	0.25	**8.65**
5.1.6 - Pilot Phase	2.2	1	1	1.5	3	0.7	0.5	**9.9**
5.1.7 - Review	2.2	0	0.5	1	2	0.3	0.25	**5.75**
5.1.8 - Full data collection	16.4	12	4	23	12	6.5	1	**90.9**
5.1.9 - Data analysis and Final report	5.5	0	1	0	4	0.8	0.25	**11.55**
Total Man months	**38.5**	**18**	**11**	**30**	**30**	**9.8**	**3.5**	**156.05**
WP 2 - In-depth accident causation database								
5.2.0 - Co-ordination								
5.2.1 - Needs of data users, including workshop	2.6	1	0	0	1	0	0	**4.6**
5.2.2 - Protocols, forms and database	3.1	2.1	2	0	5	0.8	0.4	**13.4**
5.2.3 - Infrastructure and team training	3.8	1	2	0	2	1.5	0.5	**10.8**
5.2.4 - Pilot Phase	2.3	1	0.5	0	3	0.7	1	**8.5**
5.2.5 - Review	1.3	1	1	0	1	0.9	0.5	**5.7**
5.2.6 - Crash investigations	72.5	18.2	27	0	24	37.5	20	**199.2**
5.2.7 - Data Analysis and final report	5.8	2	1.5	0	3	1.8	2	**16.1**
Total Man months	**91.4**	**26.3**	**34**	**0**	**39**	**43.2**	**24.4**	**258.3**

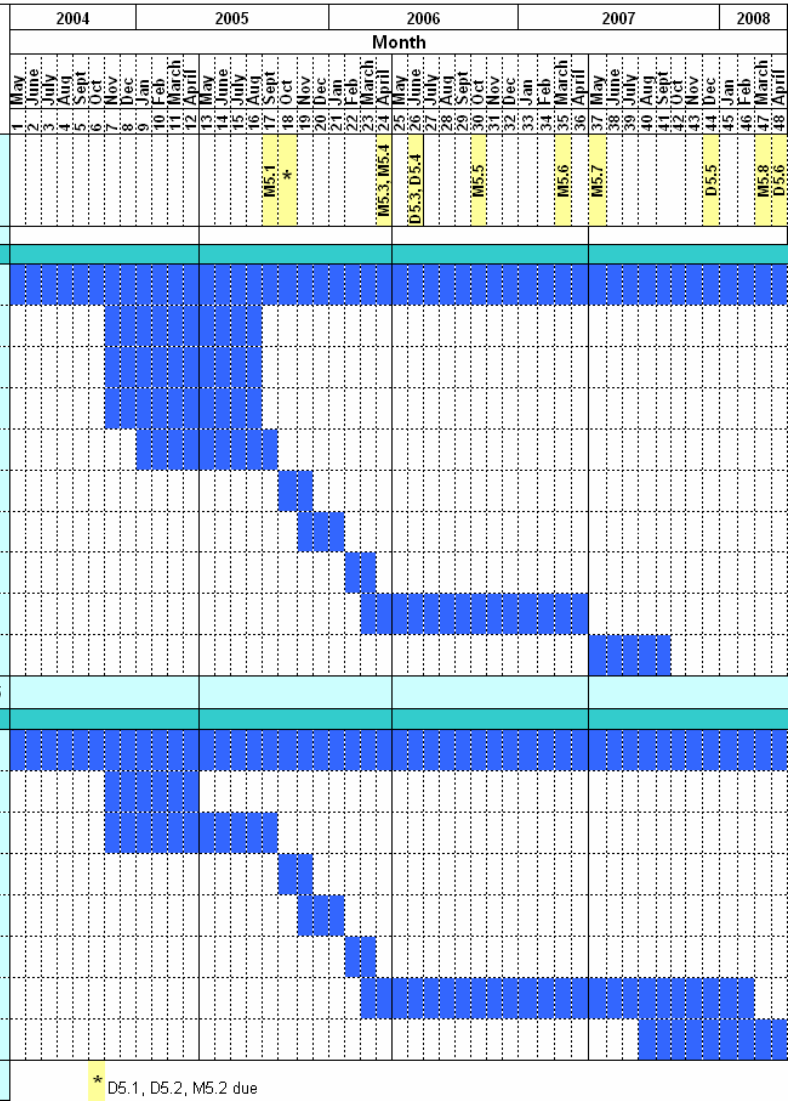


Figure 2 WP5 Project Plan

Chapter 2: Development of methodology

The overall aim of the task is to devise a factual database containing information on some 1300 fatal accidents in seven EU Member States. The data should be collected according to a harmonised and systematic protocol and therefore, particular attention has been paid to ensuring that the data collection methodology can be easily adopted by all partners. The needs of the data users are also an essential consideration and therefore the methodology has been developed with these issues at the forefront.

Summary of Task 5.1 completed activities

- Review of existing procedures and protocols in EU Member States and the US
- Derivation of a 'Data Variable List' of approximately 150 items by reviewing existing international protocols
- Data requirements have been sought from National Experts in EU25 Member States
- A number of systematic reviews of data variables have been undertaken to establish key elements for retention in data collection protocol
- Each team has established links with Police and local authorities to ensure data collection will run smoothly
- Database under development (beta-version completed by October 2005)
- Training programme completed during October 2005

2.1 User needs

Workshop on data requirements

A workshop was held in October 2004 entitled Establishing Requirements for a New European In-Depth Accident Causation Database. The aim of this workshop was to provide the future users of accident data the opportunity to feed into the process of identifying general and specific research and policy questions which future accident databases will be expected to address. This process was useful for both Task 1 and Task 2 of WP5. A report was produced to summarise the workshop[4] which focussed on the issues raised during the workshop session on the general and specific requirements for accident causation information and the subsequent feedback session on this topic. The nature of the issues that arose could be divided into 8 categories (information domains), which included:

[4] WP5 Workshop Report "Establishing Requirements for a New European In-Depth Accident Causation Database", Oct 04. Available from http://safetynet.swov.nl/index.htm

1. Pre-crash factors
2. Road infrastructure
3. Driver behaviour/human factors
4. Other road-users' behaviour
5. Vehicle technology
6. Passive safety considerations
7. Cost benefits
8. Other

As may be expected there was some overlap in the questioning that was suggested for each information domain, due to differences in the workshop participants' understanding and pre-conception of the definition of each. Inter-domain relationships were also of interest.

The feedback from the workshop has been constantly referred to whilst developing the data variables to ensure consistency with user needs.

Consultation of National Experts

Data requirements have been sought from National Experts in the EU25 Member States. Information and background on WP5 was presented to the National Experts in November 2004 and their feedback requested on data needs and requirements according to the nature of the project. All feedback was taken on board during the variable development process.

Research questions to ask of the data

Research questions to ask of the data have been discussed by the WP5 partners, and can be summarised into three main categories as detailed below. It must be emphasised that this list is not exhaustive or definitive at this stage in the project, and can and will be modified. Rather the list is simply a list of issues to keep the project partners focused on the topics of interest and to start thinking about some of the areas to analyse:

General

- What kinds of cars are involved in fatal accidents (age, type)?
- What kinds of features in road infrastructure are involved in consequences of fatal accidents (trees, guide rails, poles…)?
- What kinds of features in road infrastructure are involved in fatal accidents (lane arrangements, speed limits)?
- Which type of roads are fatal accidents most commonly occurring on?
- Which gender/age is more likely to be killed in fatal accidents?
- Which hours (or day period) are the most dangerous in terms of number of fatal accidents?
- Which cars (make, model, body type, age) are the most dangerous for pedestrians?
- Questions on the age and model of cars that CARE can't answer.
- Were there any technical vehicle breakdowns before the crash?
- Were there visibility limitations that could prevent laser, radar or positioning (e.g. GPS) systems to work?

Design improvements/countermeasures

- Which fatal accidents can we do something about technically (vehicle or road infrastructure)?
- Which protective measures have the highest benefit for reducing fatal accidents?
- What type of countermeasures could save lives?
- Dependent on results of vehicles involved, systems and regulations should be developed for specific road users.
- Dependent on results of accident maneuver information, we should be able to determine which detection systems/assistance are needed.
- Which barriers (Table 1) were broken before the accident? It should answer which driver assisting equipment should be developed (red light detector, lane departure, etc.).

Causal factors

- Which "accident type" (e.g. single vehicle-, meeting-, cross-section accident etc.) is most commonly fatal?
- Which "collision type" (e.g. frontal-, side-, rear end collision or roll over) is most fatal?
- What are the most common causes of fatal accidents? (situation, environment, alcohol etc.)
- How do weather conditions affect road accidents?

2.2 Variable development and protocols

To start this process, a review of the existing procedures and protocols in EU Member States and the US was undertaken to ensure that the project would benefit from best practice. Existing procedures and protocols that were examined in detail included the UK Cooperative Crash Injury Study (CCIS), the UK On-the-Spot Project (OTS), the German In-Depth Accident Study (GIDAS), the US Fatal Accident Reporting System (FARS), and the Swedish Factors Influencing the Causation of Accidents and Incidents project (FICA).

An initial data variable list was produced containing 1138 variables. This was reviewed by VSRC and exclusions were made for variables that were outside the project objectives, e.g. injury related criteria. After close examination of the remaining 193 potential data variables, a provisional variable compilation list ensued.

In order to determine which variables should be collected in the database, each variable was discussed in turn under the main headings of accident level, roadway level, vehicle level, and road user level. WP5 partners reviewed the provisional variable list during email circulation and at technical meetings.

Each variable on the list was reviewed by each partner in collaboration with their infrastructure collaborators, against specific questions. These included:

- Is the definition of each data variable suitable?

- Would collecting this data variable contribute usefully to the aims and objectives of the project and therefore is it deemed necessary to collect the data variable?
- Can the data variable be collected with respect to the determined definition?
- What is the expected reliability of the proposed data variable?
- What proportion of cases (per partner) could this data variable be gathered for?

The decision was made that if the proportion of cases for a data variable was less than 30% for all partners in total, then the WP5 partners would consider removing the variable concerned. Additionally, if the number of positive partner responses for collecting the data variable was less than 50%, then careful deliberation needed to be given as to whether the variable was to be retained on the prospective list or not.

Each 'potential' variable that had not already been agreed upon was discussed. This process included discussion for each variable's inclusion and definition, and partners' comments regarding possible problems with the collection of particular variables.

The list received numerous iterations after lengthy and energetic discussions, with constant revisiting of the objectives of the projects and the needs of the data users, as well as taking into account WP5 partners' comments regarding possible problems with the collection of particular variables.

After preparation of the final variable list, the preparation of the glossary and database commenced. The glossary is detailed in the Appendix.

Although there are many words that can be used to describe what is required for the on going project development, the following terms will continue to be used as defined here:

Forms = data input screens in the database which the accident investigator uses to insert information to the database.
Tables = tables that are linked to the forms where the data is stored according to the coding systems in place.
Glossary = help sheet/definition of terms, incorporated into the database for consistent understanding of terms used in the variable lists.
Protocol = paper form to fill in (e.g. on site) - these will be produced from the forms in the database for efficiency.
Methodology = how the project has developed to date, e.g. how the sampling criteria has been determined, how the variables have been chosen, including copies of the help sheets, screen shots from the database etc.

2.3 Sampling strategy and selection criteria

Key sampling issues in decision making

- The majority of partners cannot collect their allocated cases within their current infrastructure provision using a 12-month data collection time period.
- It is anticipated that all partners can collect their allocated cases from a 24-month data collection time period.
- One partner can only access data from 2003.

After some discussion of the fundamental limitations, it was determined that the sampling criteria would be set as follows:

Allocated time period for retrospective data collection is:
1 January 2003-31 December 2004

Data should be collected from a **12 month or 24 month period:**

1 January 2003 to 31 December 2003 (12 months)
1 January 2003 to 31 December 2004 (24 months)
1 January 2004 to 31 December 2003 (12 months)

Figure 3 WP5.1 sampling criteria

Each partner has to demonstrate how they intend to sample from either 1 or 2 **full** calendar years.

Each partner has to attempt to achieve a set of representative data according to their respective country by an agreed matrix of criteria. This will be reflective of and comparable to the general CARE data and specific CARE variables. Therefore, prior to and at the end of data collection, each partner has to show that their sample is representative of their country by this general framework, as indicated in the table below:

Table 2 Criteria for WP5.1 data representivity

Criterion	% in sample	% in data collection area	% in country
Road user killed			
Road class			
Urban, rural			
Month of year			

In order to maintain representivity of each country as far as possible by types of road users involved in fatal accidents, it was decided that the data should be inclusive of all types of road users, all types of vehicle, and all types of road. The data is not seen to represent the whole of Europe (which would be done by sampling from each country) and representation of road users etc. is being used to avoid over-representation of particular groups or cases, whilst giving a picture of each country's data involved.

For WP5 we are addressing the EC's figures for fatal road accidents. It was determined that we should use the same exclusion criteria as CARE does (for each country) in order that we can understand and address the full problem and to be able to compare data in future. Therefore, it was determined that one exclusion criterion should exist for sampling of cases for 5.1:

Exclude (where known that they are) natural causes and suicides.

Figure 4 WP5.1 accident exclusion criteria

Partners can collect data on accidents occurring on any types of roads including privately owned roads (e.g. shopping centre car park) as well as publicly owned roads.

2.4 Infrastructure

The infrastructure for the different partners has been developed since the project started, with strong systems in place for access to data. The infrastructure for each partner is detailed in this section.

Brief report on progress/plans to date
Report prepared by Lindsay Cant & Gilles Vallet, INRETS

Description of the area in which the partner intends to operate (data collection area):
The data collection area is the whole of France. INRETS has access to all fatal accident police reports (*les procès verbaux)*.

The sampling methodology (including an explanation of the representivity):
In order to ensure a more representative sample a two stage stratified sampling technique was carried out in the SAS statistics program to select the sample of 140 road accidents. The data was first grouped by type of road user fatality (car occupant, 2 wheeled motor vehicle user pedestrian, cyclist, lorry driver and others) and each road user category was then stratified by the type of road class where the accident took place. The table below shows the population stratified by road user fatality and road class.

Table 3 Cross tabulation of road user fatality and road class, France

	Car Occupants	Pedal Cyclists	Pedestrians	2-wheeled motor vehicle users	Lorry drivers	Other	Total
Motorway	230	0	35	48	39	15	367
Main road (RN)	729	21	112	197	24	19	1102
Secondary Road (RD)	1726	113	194	608	35	57	2733
Local street	298	43	209	259	2	25	836
Other	45	12	32	29	0	5	123
Total	3028	189	582	1141	100	121	5161

The next step was to devise a sampling plan. The sample size of 140 accidents is equivalent to 2.7% of the population therefore the number selected from each sub-group is also roughly equal 2.7% of the population sub-group. For example there were 230 accidents on a motorway involving the death of a car occupant, therefore in the sample there will be 6 of this type of accident studied in detail. The table below shows the proposed sampling plan.

Table 4 Proposed sampling plan for INRETS, France

	Car Occupants	Pedal Cyclists	Pedestrians	2-wheeled motor vehicle users	Lorry drivers	Other	Total
Motorway	6	0	1	1	1	0	9
Main road (RN)	20	1	3	5	1	1	31
Secondary Road (RD)	47	3	5	16	1	2	74
Local street	8	1	6	7	0	1	23
Other	1	0	1	1	0	0	3
Total	82	5	16	30	3	4	140

The sample was then selected using the above methodology. The four tables below show how that sample compares to the population for four different variables: road user fatality, road class, urban/rural, and month of year. All the sample proportions for the different groups have been statistically tested to confirm that they are not statistically different from the relevant population proportion. These tests confirm the above with a 99% confidence level.

Table 5 Road user killed in France/sample

	Car Occupants	**Pedal cyclists**	**Pedestrians**	**2-wheeled motor vehicle users**	**Lorry drivers**	**Other**
% in sample	58,6	3,6	11,4	21,4	2,1	2,9
% in France	58,7	3,7	11,3	22,1	1,9	2,3

The group other includes vans, agricultural vehicles, and public transport.

Table 6 Road Class in France/sample

	Motorway	**Main Road**	**Secondary Road**	**Local street**	**Other**
% in sample	6,4	22,1	52,9	16,4	2,1
% in France	7,1	21,4	53,0	16,2	2,4

Main road corresponds to the *Routes Nationales*, toll free roads linking major towns. The secondary roads are the *Routes Départementales* often, but not always, country roads linking smaller towns and villages. Other includes private roads and car parks.

Table 7 Urban/Rural roads in France/sample

	Rural	Urban
% in Sample	70,7	29,3
% in France	71,1	28,9

Urban and rural have been defined as "*hors agglomeration*" for rural and "*en agglomeration*" for urban.

Table 8 Month of year France/sample

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
% in Sample	8,6	7,9	8,6	6,4	7,1	9,3	9,3	11,4	7,9	10,0	5,7	7,9
% in France	7,0	6,4	7,7	7,3	8,7	9,5	10,0	9,6	9,0	9,0	7,6	8,3

This table shows the proportion of accidents in each month for the sample and the population.

Details of the links with local infrastructure/police for data collection preparation:
INRETS systematically receives all the finalised police reports. At present, we have a copy of all the police reports concerning fatal accidents in the whole of France from January to September 2003. The three remaining months will soon arrive. For some accidents the police reports are missing. It is therefore important to put in place a procedure to follow in case the report for one or more of the chosen accidents is not available. If a report is unavailable a new accident will be drawn at random from the strata from which the missing case came. This can only be done when the police report is missing and not when it is just "poor quality" and therefore difficult to locate all the information needed. It is also difficult to draw a distinct line between a good report and a poor quality one. Therefore any reselection of cases should only be done when the police report is missing. During sample selection 15 accidents had to be redrawn at random from their respective group because the police report file was missing.

Any problems or concerns that have arisen:
There are no foreseeable problems.

Brief report on progress/plans to date
Report prepared by: D. Margaritis, TNO

Description of the area in which the partner intends to operate (data collection area):
TNO intends to operate in the area Zuid-Holland (or so-called province Zuid-Holland). This province is split up into 4 regions: Rotterdam-Rijnmond, Haaglanden, Hollands Midden en Zuid-Holland Zuid. The area covers 344575

ha from which 13086 ha are meant for traffic use. 21% of the total surface is built or paved.

The sampling methodology (including an explanation of the representivity):
TNO intends to collect fatal accidents, which are investigated by the four accident investigation police groups TOD (representing each of the four regions). In particular, TNO will cooperate with the Rotterdam-Rijnmond police force. This decision is based on previous successful cooperation on similar kind of work, as it is required by the WP5.1. TNO will request to the police those accidents that fulfil the sampling plan.

The “traffic participant”, “road type” and “month of the year” will be the sampling criteria and the percentage of collected accidents per category (fulfilling those criteria) will be based on the national data for the whole Netherlands.

The tables below show the national figures of different parameters (accident severity, size of the area, population and vehicle fleet) for both Zuid-Holland and The Netherlands in total.

In general it can be concluded that the province Zuid-Holland is pretty representative to the national figures. As far as the accident severity is concerned, some under or over representation can be observed for the group of slight injured of the province with respect to the national figures.

A small difference can also be seen between the percentage of the provincial covered area and the national one.

Table 9 Accident severity in Netherlands/Holland

	Severity (2001-2003)				
	Light injured	Trans. to hospital	Hospita-lised	Fatalities	Total
Netherlands	52398 (42%)	36436 (30%)	32643 (26%)	3008 (2%)	124476
Zuid- Holland	8233 (35%)	9921 (41%)	5179 (22%)	417 (2%)	23750 (19%)

Table 10 General information about roads and vehicles in the Netherlands/sample

	Sample area	
(Year 2000)	**The Netherlands**	**Zuid-Holland**
Population (x1000)	15864	3398 (21%)
Area (ha) (x1000)	4153	345 (8%)
Traffic network (ha) (x1000)	113 (2.7%)	13 (3.7%)
Vehicles (x1000)	7930	1590 (20%)
Covered area (ha) (x1000)	480 (12%)	72 (21%)
Uncovered area (ha) (x1000)	3672 (88%)	273 (79%)

Details of the links with local infrastructure/police for data collection preparation:
The TNO accident research team has established a very good co-operation with the Accident Investigation Police Force (TOD) and with the regional police in general the last 6 years. Police accident data can be available anytime without special agreements. TNO has committed the data protection to the Ministry of Justice and it is responsible for the present and future usage of the data.

TNO will collect the following police documents per fatal accident (if possible):

-Accident police report
-Statement of victims/witnesses
-Accident report of the Accident Investigation Police Force (TOD)
-Digital pictures of the accident location, vehicles and accident reconstruction

Any problems or concerns that have arisen:
No problems are expected.

D.I.T.S.

Brief report on progress/plans to date
Report prepared by: Pierluigi Aloia, DITS

Description of the area in which the partner intends to operate (data collection area):
The data collection area that will be used to collect the target number of accidents (480) is the whole country.

The sampling methodology (including an explanation of the representivity):
A preliminary analysis has been carried out on three different data sources (national statistical report, police report and insurance report) in order to determine the most suitable data source in terms of data availability and reliability. Results showed that insurance report is the most suitable data source.

All the reports will be provided by an insurance company that holds approximately the 4% of the whole national market and it's nation wide coverage should guarantee data representativenees.

The reference period to reach the target number of 480 fatal accidents has been estimated into 15 – 24 months. This has been estimated as follow: last year about 8,000 fatal accidents occurred in Italy; 320 of them have been taken into account by "our" insurance company (4% of the national market). Therefore, in order to reach the foreseen number of accidents (480) the reference period should be of 15-24 months.

Details of the links with local infrastructure/police for data collection preparation:
Linkage with the involved insurance company have been established and are on going.

Any problems or concerns that have arisen:
The linkage with the Insurance Company represents a very delicate step of the whole process, especially concerning data dissemination.

Brief report on progress/plans to date
Report prepared by Kalle Parkkari, VALT

Description of the area in which the partner intends to operate (data collection area)
Finland (whole country), see descriptives in Tables 11-14.

Table 11 Occupant fatal motor vehicle accidents studied by investigation teams in 2003 by month

	Number of accidents 2003	
Month	**N**	***%***
January	**17**	***6.5***
February	**15**	***5.8***
March	**16**	***6.2***
April	**18**	***6.9***
May	**25**	***9.6***
June	**22**	***8.5***
July	**21**	***8.1***
August	**28**	***10.8***
September	**30**	***11.5***
October	**24**	***9.2***
November	**13**	***5***
December	**31**	***11.9***
TOTAL	**260**	***100***

Table 12 Occupant fatal motor vehicle accidents studied by investigation teams in 2003 by road type

	Number of accidents 2003	
Functional class of the road/street	**N**	***%***
Main road (class I)	**105**	***40.4***
Main road (class II)	**14**	***5.4***
Regional road	**37**	***14.2***
Connecting road	**51**	***19.6***
Main street	**12**	***4.6***
Feeder street	**12**	***4.6***
Another street or local plan street	**10**	***3.8***
Private road or area (e.g. yard)	**15**	***5.8***
Pedestrian and cycle traffic route	**1**	***0.4***
Railway or tramway	**.**	***.***
Other	**3**	***1.2***
TOTAL	**260**	***100***

Table 13 Occupant fatal motor vehicle accidents studied by investigation teams in 2003 by population density

	Number of accidents 2003	
Population density	**N**	***%***
Densely populated area	**41**	***16.3***
Close to densely populated area	**26**	***10***
Sparsely populated area	**185**	***73.4***
Not known	**8**	***.***
TOTAL	**260**	***100***

Table 14 Number of persons killed in occupant fatal motor vehicle accidents investigated by investigation teams in 2003 by vehicle type

	Number of persons killed 2003	
Vehicle type	N	%
Passenger cars and vans	246	83
Heavy vehicles	11	4
Motorcycles and mopeds	34	12
Others	4	1
TOTAL	295	100

The sampling methodology (including an explanation of the representivity)

The sample of 60 accidents will be taken from total of about 330 accidents annually. Sample can be taken from year 2003, 2004 or both. Representativity issues will be taken into account as agreed by the criteria set at work package level.

Details of the links with local infrastructure/police for data collection preparation

According to current legislation, Accident Investigation Organisation has the right to receive information from police etc. Links are already established for ongoing accident investigation.

Investigation team call out (VALT 2002)

The method works effectively when the team arrives at the scene soon after the accident. Any delay in the investigation reduces the quality of the information available, such as the marks on the road surface and in turn the reliability of the reconstruction. The investigation may also be carried out later if the call out is delayed for some reason. A reason for the delay can be, for example, a later fatality after an accident.

The information about the accident will usually be reported by the emergency centre or the local senior police officer to the investigation team. The investigation team leader makes sure that those who raise the alarm are aware that the accidents are within the scope of the investigation programme. Alerting members of the investigation team takes place according to the procedure and order agreed on by the team.

Co-operation with the local police (VALT 2002)

The investigation is performed in co-operation with the local police in the preliminary investigation or in the investigation into cause of death to an extent that is consider appropriate by the investigation team leader.

The authorities must supply investigation material that they have collected to the investigation team when it has been begun its operation. The Finnish Motor

Insurers' Centre can agree with the authorities and with the state institutions on the co-operation concerning an accident investigation and the use of its findings.

Any problems or concerns that have arisen:
None.

CHALMERS

Brief report on progress/plans to date
Report prepared by Helen Fagerlind, Chalmers

Description of the area in which the partner intends to operate (data collection area):
"Region West" which includes three ("Västra Götaland", "Värmland" and "Halland") of twenty-one counties in Sweden (see Figure 5). The area of these counties represents approximately 10 % of the Swedish area.

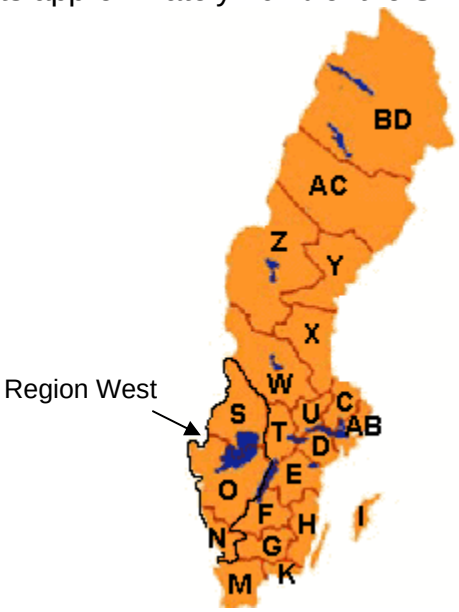


Figure 5 Map of Sweden and its counties

The sampling methodology (including an explanation of the representivity):
The fatal accidents in "Region West" represents approximately 25 % of the fatal accidents occurring in Sweden, Figure 6. There are around 120 fatal accidents occurring in "Region West" each year why a collection over 24 month will be necessary.

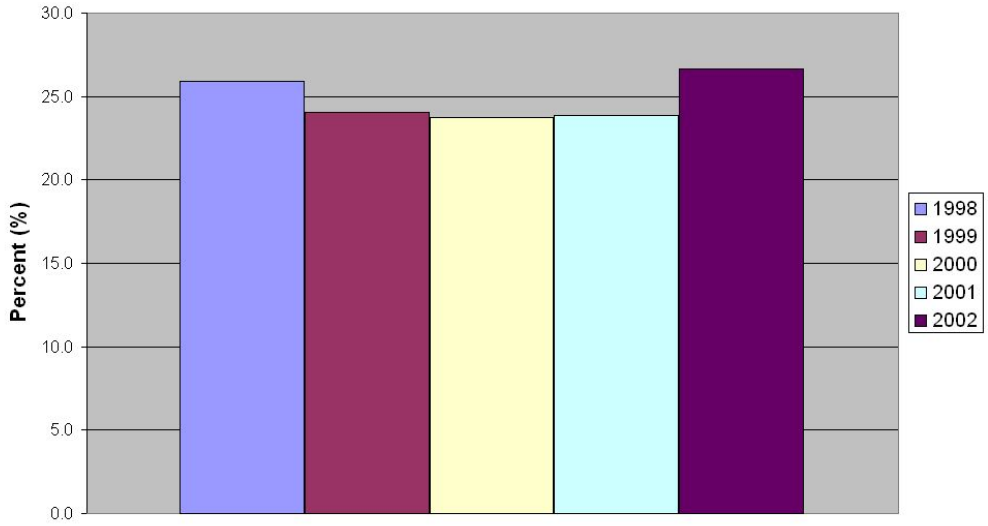


Figure 6 Percentage of fatal accidents in Region West compared to the whole country.

The fatal accidents represent around 3 % of all accidents reported both in "Region West" and in the whole country, Table 15.

Table 15 Severity/Year, Region West (RW) compared to whole country (SE)

	Years				
Severity	1998	1999	2000	2001	2002
	%	%	%	%	%
Fatal SE	1	1	3	3	2
Fatal RW	1	1	3	3	3
Severe SE	4	5	17	17	18
Severe RW	4	4	17	17	17
Slight SE	17	18	68	67	67
Slight RW	17	16	79	79	80

"Region West" is also representative for all the different accident types, Table 16.

Table 16 Accident type, Region West (RW) compared to whole country (SE)

Fatal accidents (%)		
Accident Type	RW	SWE
Single	4.3	4.1
Meeting	11.4	12.9
Passing	3.4	3.6
Rear end	0.4	0.4
Turning	1.6	1.4
Junction	2.0	1.7
Cycle/Moped	2.2	1.7
Pedestrian	6.9	5.3
Other	2.7	2.4
Animal:deers & moose	1.9	1.7

Details of the links with local infrastructure/police for data collection preparation:
A link to the Swedish Road Administration (SRA) has been made.

Any problems or concerns that have arisen:
None

VSRC Vehicle Safety Research Centre

Brief report on progress/plans to date
Report prepared by Charlotte Brace, VSRC

Description of the area in which the partner intends to operate (data collection area):

- The data from the UK to be included in the fatal database (5.1) will be from police fatal accident reports.
- VSRC will collect data from the East Midlands region, including the two English counties of Nottinghamshire and Leicestershire, Figure 7.

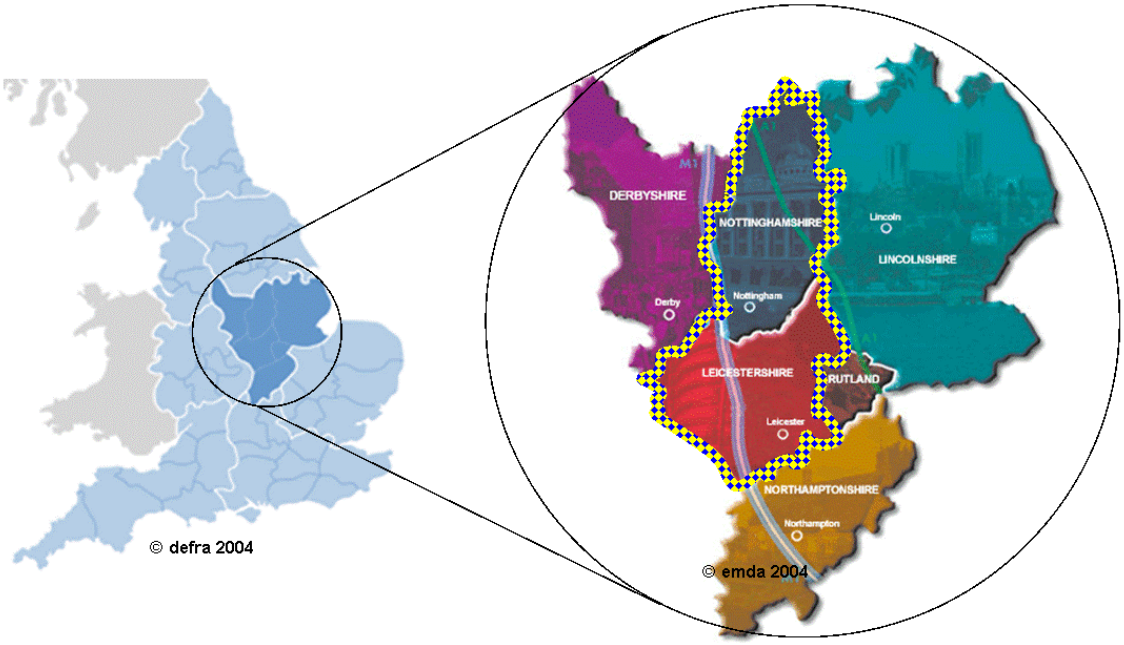


Figure 7 UK sampling region for 5.1

The sampling methodology (including an explanation of the representivity):

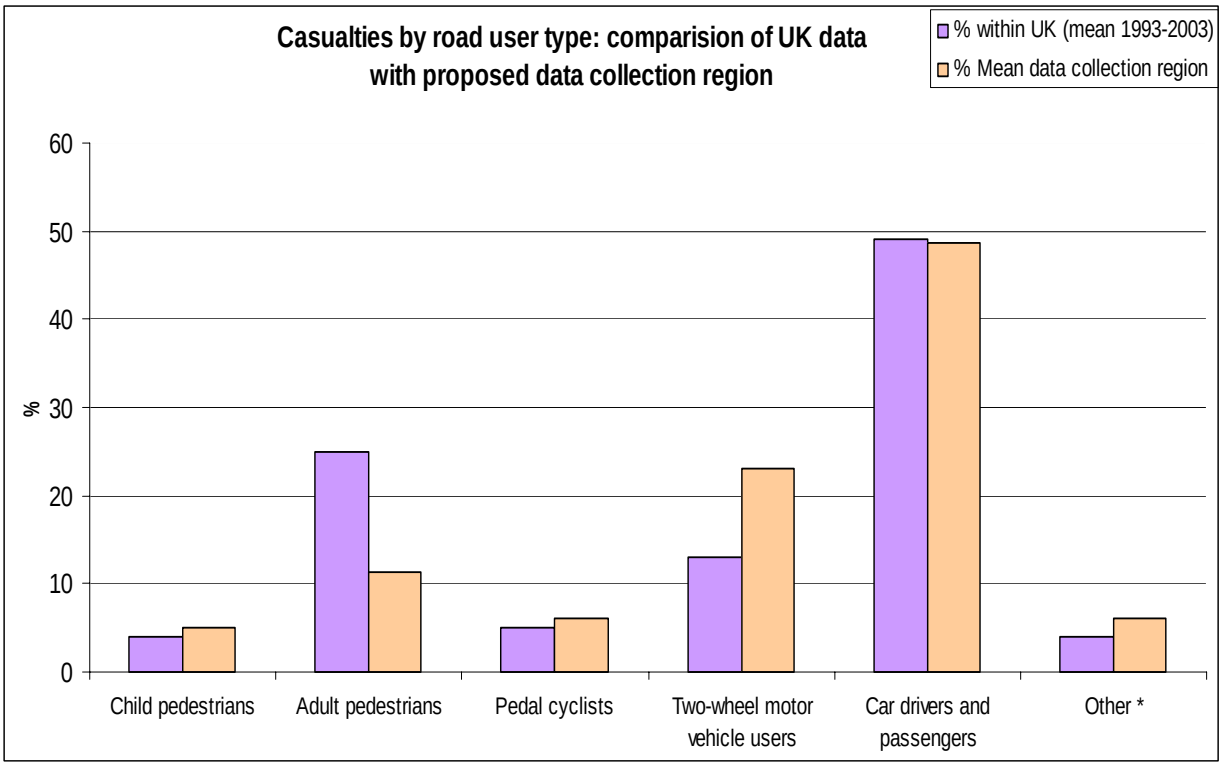
- VSRC is contributing 270 cases to the database which will be collected over the one year time period, using retrospective methodology.
- The average number of fatalities in the East Midlands between 1997-2002 was 359 per year in the region, and the number of fatal accidents during 2003 and 2004 for the individual counties are shown in Table 17.

Table 17 2003 Traffic Casualties for the UK and sample area in 2003

Area	Severity of injury (% of total)			All Accidents in 2003
	Fatal	Serious	Slight	
Nottinghamshire	**82 (1.5%)**	826 (15.3%)	4492 (83.2%)	5400
Leicestershire*	**56 (1.2%)**	358 (7.8%)	4193 (91%)	4607
Total in these counties	**138**	2325	16448	19078
Total UK	**3508 (1.2%)**	33707 (11.6%)	253392 (87.2%)	290607

*Excluding Rutland

- It is anticipated that numbers for 2004 will be similar to those for 2003 (these figures are not yet published), resulting in approximately 270 fatal accidents within the data collection area.
- The sample will be representative of the UK's fatal accidents because all the accidents from the specified regions will be used as cases in the database, and these regions are representative of the wider UK picture, in terms of the proportion of fatalities within all road accidents, and road user fatality types, Figure 8.



** goods vehicles, bus, coach, horse riders, agric vehicles, trams users, and pedestrians of uncertain age*

Figure 8 Casualties killed and seriously injured in UK and sample area 1993-2003

Details of the links with local infrastructure/police for data collection preparation:

- Nottinghamshire police have agreed to be involved in the project and have given their permission for VSRC to access their records.
- Permission is still being pursued from the other East Midlands police force. General feedback is positive, and it is not anticipated that there will be any difficulties obtaining the data.
- Agreements are being prepared between VSRC and each police force concerned, which outline the protocol for data collection and data protection.

Any problems or concerns that have arisen:
None.

Brief report on progress/plans to date
Report prepared by Michael Jänsch, MUH

Description of the area in which the partner intends to operate (data collection area):
It is the task of MUH to collect data of fatal traffic accidents in Germany. For this purpose accidents have to be used, which where documented by the police. In Germany there are the following sources to get information about the accidents which occurred:

- national statistical data
- police reports
- In-depth-investigations by scientific teams (GIDAS).

The region of data acquisition for the work at SafetyNet WP5.1 at the MUH is the state of Lower Saxony. Lower Saxony is one of 16 governmental states within the country of Germany (Figure 9).

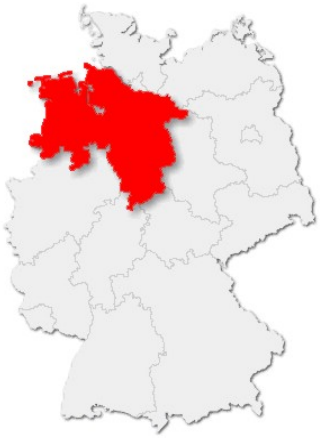


Figure 9 Germany with the state of Lower Saxony highlighted.

The sampling methodology (including an explanation of the representivity):
To introduce the state of Lower Saxony, Table18 shows a relevant selection of state specific data from the end of the year 2003 in comparison with the whole of Germany.

Table 18 Statistical comparison between Lower Saxony and the whole of Germany.
(Statistical data taken from the ´Statistisches Bundesamt Deutschland´ for the year 2003)

	Lower Saxony	**Germany**	percentage of Germany
area in km^2	47 618	357 030	13.3 %
population	7.993 mill.	82.532 mill.	9.7 %
population density (inhabt./km^2)	168	231	n.a.
registered vehicles	5.379 mill.	54.082 mill.	10 %
people killed in traffic	774	6 163	12.6 %
Autobahn kilometres	1 354	12 044	11.2 %
kilometres of all road types	28 186	231 420	12.2 %

As the table shows, the state of Lower Saxony has a little more than 10 % of the area of Germany. With a population density of only 168 inhabitants per km^2 Lower Saxony is a rather rural state within Germany. Nevertheless the traffic related data from Lower Saxony lies within a small margin of only between 10 and 13 % of the German data and can therefore be used to obtain representative data for the whole of Germany.

The capital of Lower Saxony is the city of Hanover. In the region of Hanover a scientific team of accident researchers named GIDAS (German In-Depth-Accident-Study) is operating with the methodology of “In-depth-investigation on scene”. In this project a random sample of approx. 1000 accidents with injured traffic participants, fatalities included, are stored in a special database. The operating area is the local area of Hanover only. This area however is a representative part of the whole country of Germany. A team with medical staff and engineers go to the accident scene within a diameter of about 100 kilometres around the Medical University Hanover. GIDAS Hanover collects approx. 30 to 40 fatalities annually.

In accordance with the SafetyNet WP5.1 decision to collect data of a 12 month period within the years 2003 and 2004, MUH will collect accident data of the period beginning on the 1st of January 2003 and ending on 31st of December 2003.

Details of the links with local infrastructure/police for data collection preparation:
For the WP 5.1 of the SafetyNet project a total of 200 accident files will be generated and provided, for accidents which occurred during 2003. The data sources for SafetyNet WP5.1 are described in Figure 10.

Accident data of a country can be collected from various data sources, starting by police, followed up by the prosecution records. Although the amount of information and the information structure differ, a great part of the important,

basic information is available in all of the sources. It was the task of the project to find out which data is accessible and how much information the different levels respectively offer for scientific use.

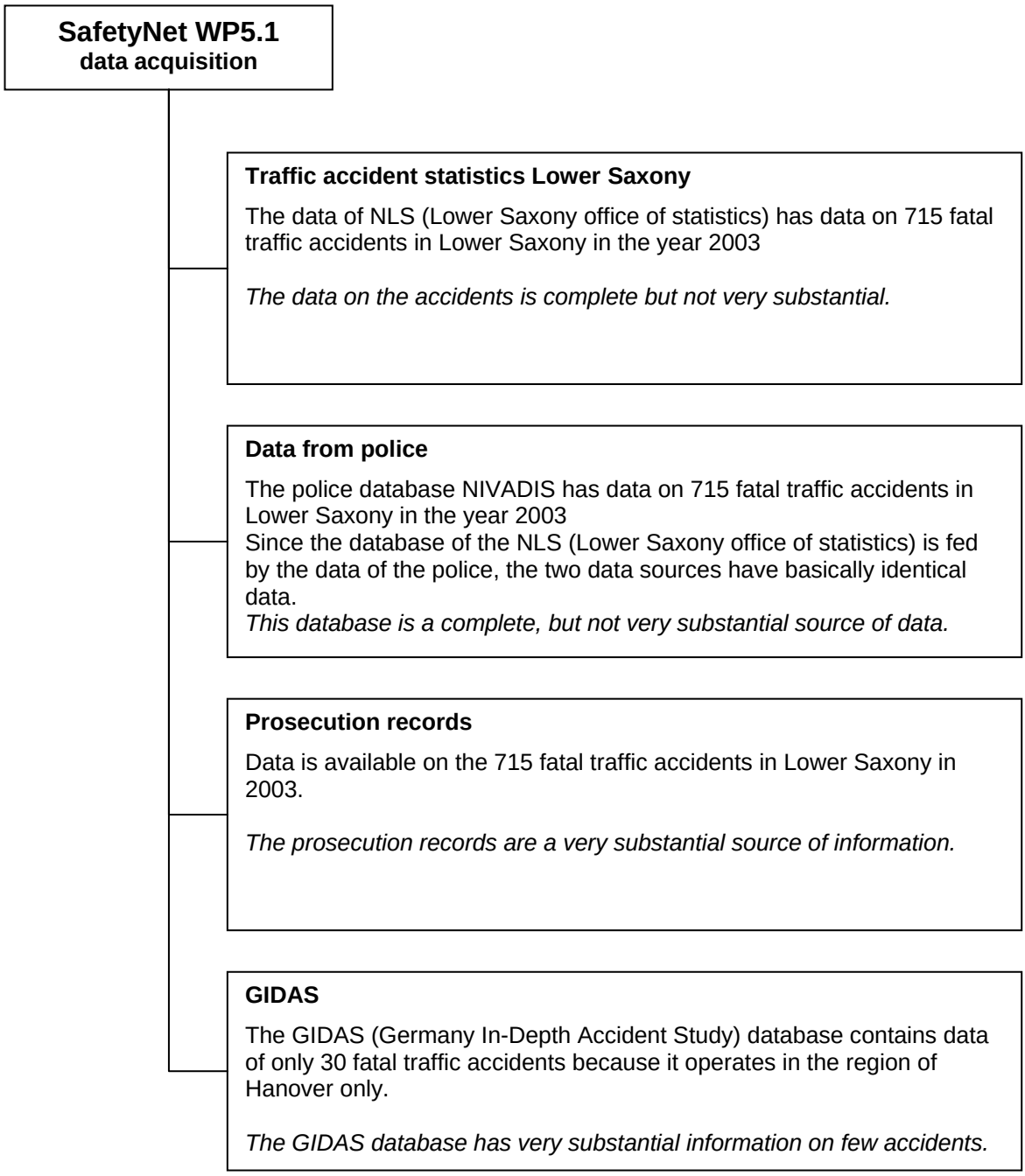


Figure 10 German data sources for SafetyNet WP5.1

Description of the obtainable data

Accident data of a country can be collected from various data sources, starting by police, followed up by the prosecution records. Although the amount of information and the information structure differ, a great part of the important, basic information is available in all of the sources. It was the task of the project

to find out which data is accessible and how much information the different levels respectively offer for scientific use. For the WP 5.1 of the SafetyNet project a total of 200 accident files will be generated and provided.

NLS – Lower Saxony Office of Statistics

The first source of fatal accident data is the data of the Lower Saxony office of statistics - NLS. The Lower Saxony office of statistics (Niedersächsisches Landesamt für Statistik NLS) collects the accident data of every accident to which the police responded (accidents with injuries or at least one tow-away-vehicle) which occurs in the state of Lower Saxony. Other national counties have nearly the same procedure. A defined dataset is transmitted to the German office of statistics describing the situation for the whole country.

The NLS has recorded a set of basic data of all 715 fatal accidents which occurred in the state of Lower Saxony in the year 2003. The basis for the NLS database are the police reports and police statistics. Therefore the record variables of the NLS are very similar to the record variables of the police statistics. Apart from that other data (especially vehicle specific data) is added from other existing federal databases i.e. the Federal Bureau of Motor Vehicles and Drivers (Kraftfahrt-Bundesamt).

For each accident participant there are a total of 108 different variables collected within a record. Therefore each accident may have a multiple number of records according to the amount of participants.

Police statistics

The accident reports from the police are entered in to a police database. Until the year 2004 this database was called MIKADO, since then it is called NIVADIS. Due to the fact that the police database feeds the database of the Lower Saxony office of statistics (NLS) there are no significant differences between the available data from the police database MIKADO and the database from the NLS. Both the variables and the data structure are virtually identical. As well as the NLS database the police database is fed with a rather basic extent of variables for each accident. Due to the similarity between the police database and the database of Lower Saxony office of statistics (NLS), at this point the police database shall be of no more interest.

Prosecution records

Every time a fatal traffic accident occurs the police inform the district public prosecution authority to take action. Therefore there are prosecution records on all of the 715 fatal accidents. Prosecution records or the attorney's records are a very substantial source of data. Since there are no entirely fixed procedures of the attorneys work on the case, prosecution records may include a variety of different reports and information sources, e.g. police reports, witness statements etc. The data found in the prosecution records may be divided into the following four categories: Environmental data, vehicle data, person related data, injury details.

GIDAS – Database

The GIDAS (German In Depth Accident Study) database is fed with data which is obtained through the ARU (Accident Research Unit). The ARU is a team of experts which, when on duty, responds to any traffic accident with injuries in the region of Hanover. In a detailed investigation the team acquires both technical data from the accident site and medical/injury data from the people involved. The region of the data acquisition is the region of Hannover. With 2290 sqkm the region of Hannover is about 5% the size of Lower Saxony (47618 sqkm) and with 1.13 million inhabitants the region of Hannover has about 14% of the population of Lower Saxony (8 million inhabitants). Due to the relatively high amount of urban parts in the region of Hanover, in the year 2003 only 8 % of the fatal accidents in the state of Lower Saxony (715 fatal accidents) occurred in the region of Hannover (57 fatal accidents). From the about 60 annual accidents with fatalities in the Hannover region the GIDAS database records approximately 30. The GIDAS database records a large amount of accident specific data. With more than 1000 relevant variables the record structure has a volume of 23 record categories. As a data source for the SafetyNet WP5.1 the GIDAS database is an ideal basis due to the extensive amount of data available per case and due to the quality of this data. Unfortunately only an expected 4% of the relevant cases in Lower Saxony are covered by the GIDAS database (data only from the Hannover region).

For the work at WP5.1 of the SafetyNet project MUH has the task to get access to the data of the sources mentioned above. The data of the Lower Saxony office of Statistics (NLS) as well as the prosecution records were chosen to be the main sources of information to gather accident data for WP5.1. The combination of a very complete but basic set of data from the NLS and the very profound accident information of the prosecution records seemed to be the best strategy to be able to obtain reliable, substantial and complete data for the SafetyNet project. While information of the GIDAS database will only be used if important data should be missing and if GIDAS data is available on the case, the police database will not be used at all since there is no more data expected than already available by the NLS.

MUH will contribute 200 cases of fatal traffic accidents which occurred during the year 2003.

Case selection

When it comes to the case selection it is important to assure that the chosen cases are statistically representative cases of the accident situation in Lower Saxony in the year 2003. Therefore at first the all the records of the NLS concerning fatal accidents in 2003 were requested. From these 715 fatal accident cases one third (238 cases) were selected, taking every third accident.

Data acquisition

With the knowledge of date, time and place of the chosen 238 accidents, the responsible public prosecutors offices and the corresponding file references of the prosecution records where acquired with the help of the police.
In Lower Saxony there are 12 district public prosecution authorities. After having agreed to follow the applicable data confidentiality requirements, the

prosecution records to the chosen cases where requested from the corresponding prosecutors offices.

Data storage
Because the requested prosecution records are only available for a limited amount of time, the complete information of the records needs to be stored at least for the duration of the SafetyNet project. To accomplish this, the obtained prosecution records are scanned and saved locally, meeting data confidentiality requirements. From these scanned files it will be possible to feed the SafetyNet WP5.1 database.

State of affairs
The difficulty of the chosen methodology was the existing of different file reference identification numbers at the police office and at the prosecutions office. Therefore a huge progress was taken to get the corresponding file reference identification numbers.

First of all out of a total of 715 annual fatal accidents in Lower Saxony 238 cases were chosen following a statistical random procedure. For these files file reference numbers of the prosecutions offices had to be selected via the police headquarters . Due to the fact that not all of the files could be assigned to the corresponding cases, MUH received only 223 file references from the police department.

We are now at the state of receiving prosecution records from the different prosecutions offices and are scanning the details of information for further analysis. The chart below (Figure 4) shows the current progress of receiving and scanning the prosecution records.

Up to now not all of the requested 223 prosecution records were sent to us, we expect a little lower amount of prosecution records which can be used for the work at SafetyNet. However we expect the availability of more than 200 records. These records can be pointed out as a representative sample of all fatal accidents in Lower Saxony. On the basis of the overall statistics of Germany, in which Lower Saxony is partly integrated, a statistical weighting of our sample will be possible.

Any problems or concerns that have arisen:
None.

2.5 Database development

The database objectives and requirements were formalised early on in the database development process and are stated in the first part of this section.

There were several tasks to perform to be able to create the SafetyNet Accident Database. Many tables and forms needed to be created and linked together. There were mainly three different organisations who were involved in the process of creating the database, according to the man month schedule (VSRC,

MUH) and pre-arranged agreements (DITS). However, Chalmers contributed significantly to managing this process and ensured a smooth development process with input from their experienced research team. This was particularly useful and significant with the close relationship required between WP5.1 and WP5.2 for the joint database activities.

Database Objectives and Requirements

General information

Due to some common variables collected both in the fatal and in-depth databases, particularly regarding "general variables", the opportunity to integrate 5.1 and 5.2 databases was suggested. Preliminary analyses highlighted no major problem using a "common" database; moreover this will allow to perform a cross analysis on fatal and in-depth data concerning the general variables, a potential benefit as mentioned in Section 1.2.

- Forms will be filled in by all partners off-line and then sent to DITS as .xml files (Extensible Markup Language) and uploaded into the main database by means of FTP.
  ("XML is a pared-down version of SGML, designed especially for web documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation, and interpretation of data between applications and between organizations.")
- Each organisations data will be stored locally on a PC or server.
- All uploaded data will be stored on a server at DITS.
- It is most likely that the main database will be built using MySQL.

Requirements of the database

- The database should contain two parts, a separate software part for data input and one part for data storage. Since the functionality and variables can change during the data input phase, it was decided that the data input part should be a separate software which easily can be updated from the WP5 web portal. If the coding of a variable needs to be changed a new code will be added. The partners must check and change their own data in case it is needed.
- The system should allow multi-access (i.e. more than 1 partner can upload or download data at the same time).
- A consistency check should be implemented in the forms in order to ensure data consistency.
- A web portal must be developed (only accessible by WP5 partners with a protected ID and password) from where partners can download the raw data from the database in .xml, .txt or .xls format.
- There is no requirement for the database to contain data analysis tools. Instead, raw data will be downloaded by partners and then analysed off-line by partners using partners' own statistical software (e.g. SPSS).
- Aggregated results need to be made available to the public via another web portal. There needs to be discussion with WP6 regarding the integration of the aggregated results of the WP5 data collection activities with the ERSO (European Road Safety Observatory) website.

- Some of the more detailed analysis of the data collected in WP5 will be undertaken by WP7. There needs to be discussion with WP7 partners about what analysis they will conduct and what will be done by WP5 partners. See Section 3.1.

Description of common interface proposal for 5.1 and 5.2

The structure of the databases for 5.1 and 5.2 will be joined together, see Figure 11. To be able to include all accident types in both parts of the database all road users need to have a VehicleID (Vehicle data). Pedestrians could, for example, have "shoe" as a vehicle.

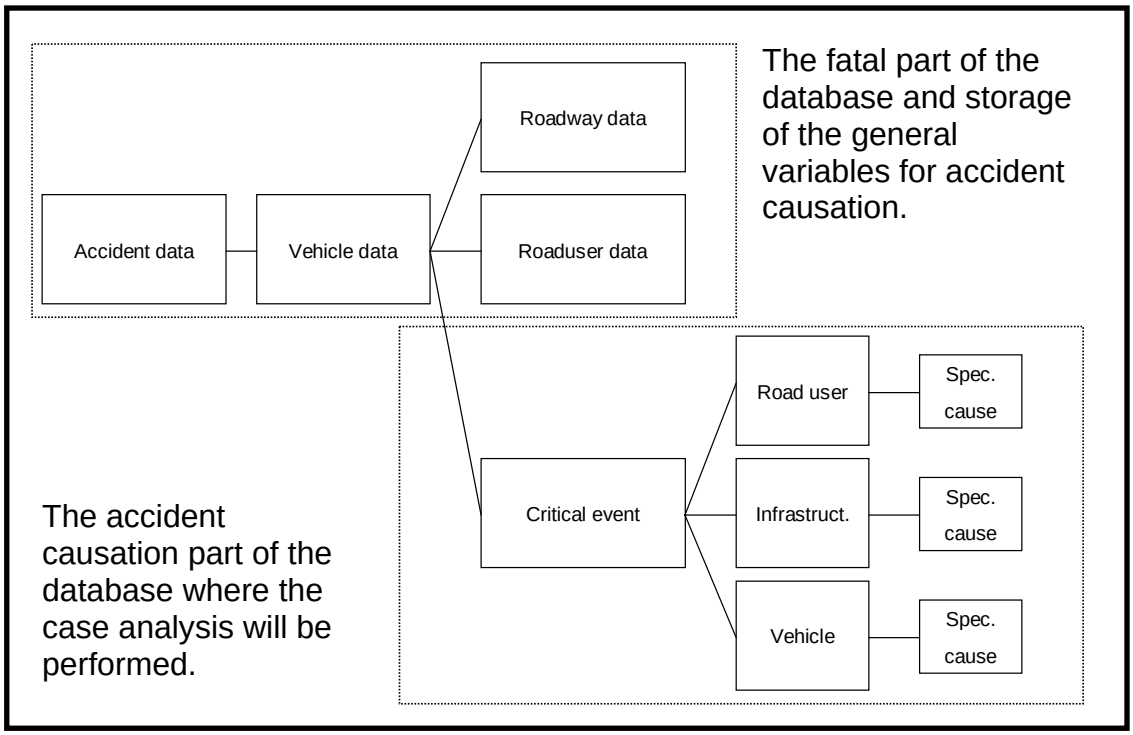


Figure 11. Database structure proposal for task 5.1 and 5.2.

Use of the Task 1 database

A schematic diagram summarising the basic information about the way the database will be used is shown below, Figure 12.

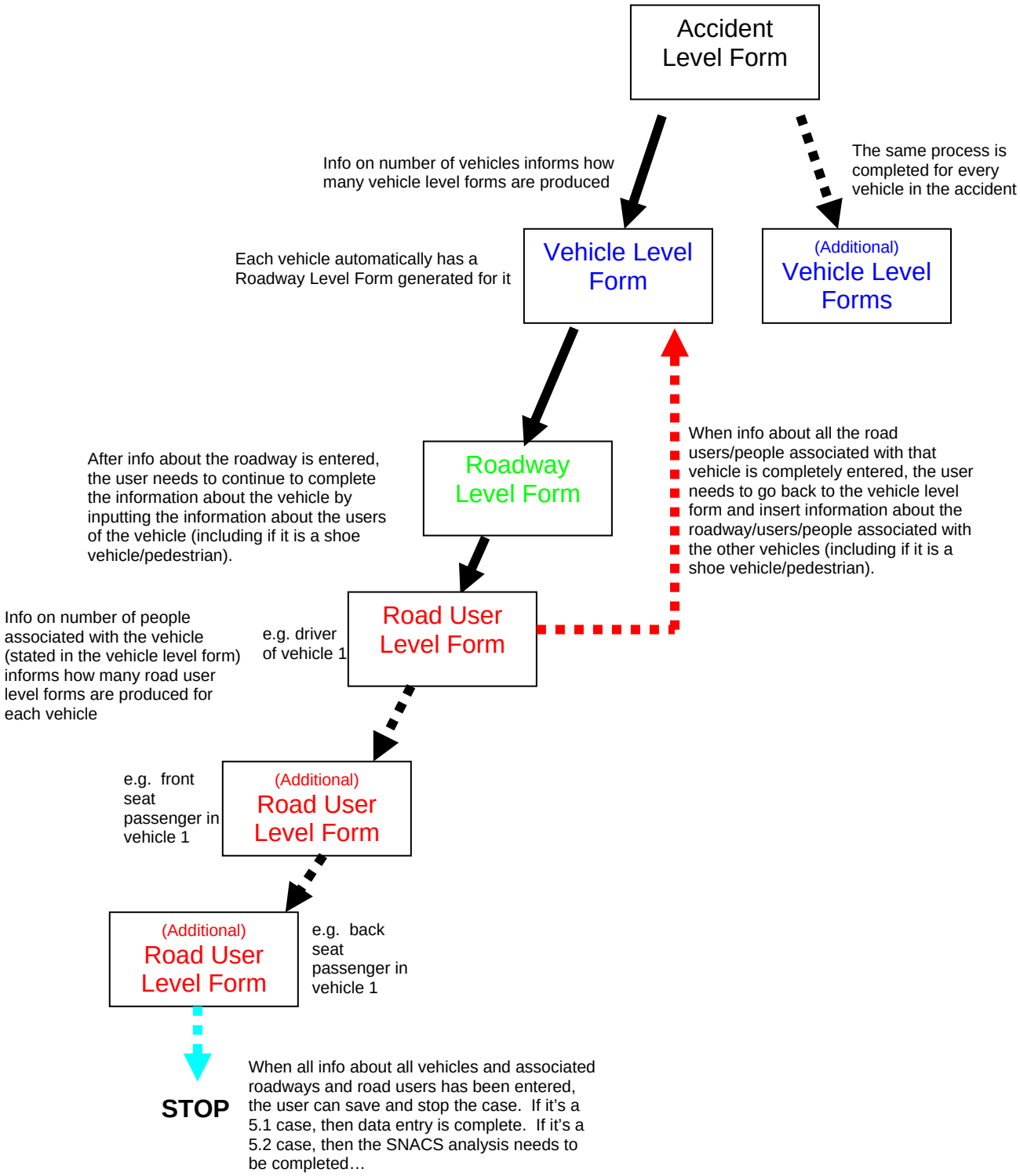


Figure 12 Schematic on basic principles of 5.1 database use

Data consistency check

It was felt important to make the majority of the forms and tables contained in the database to be presented in combo boxes and text boxes (although other

types of inputting responses also occur), in order to reduce input error and to improve the human-computer-interaction.

During the building of the forms, it was important that the correct data type was set for each variable (general variables, critical events, causes). For example; a variable such as “Accident date” should have the data type “date/time” and the variable “Accident day” should have the data type “text”.

Another type of consistency check which has been built into the database is the matter of not being able to register for instance four digits into a field which cannot realistically consist of more than three digits (i.e. age in years).
Below are some screen shots from the database. Figure 13 gives a picture of what kind of information is collected about the accident, and Figure 14 illustrates the input of information regarding the vehicle involved.

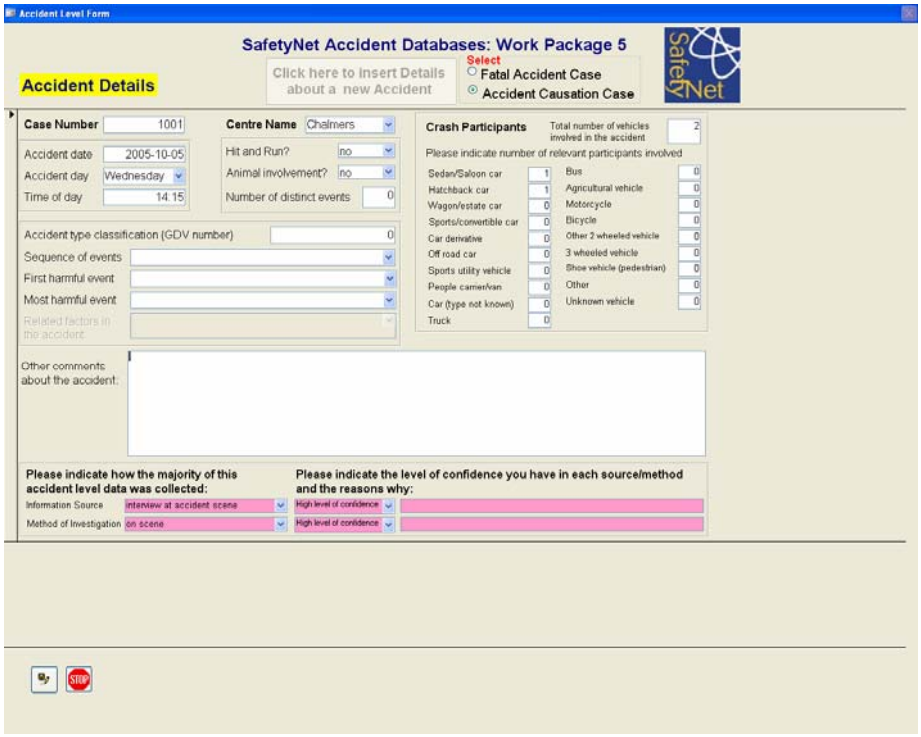


Figure 13. Accident level form

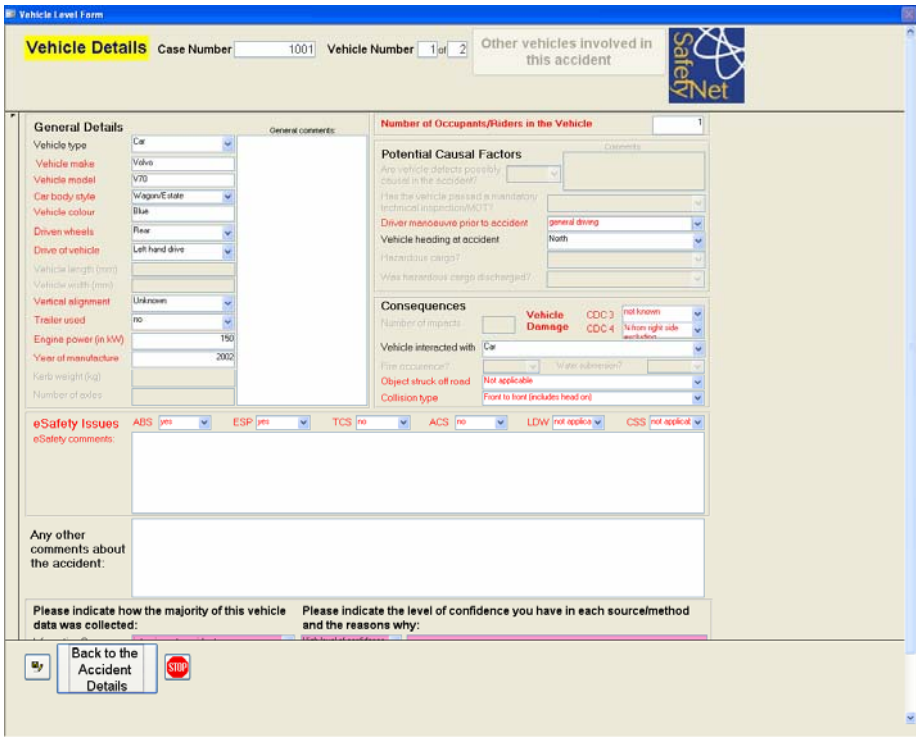


Figure 14. Vehicle level form

Chapter 3: Collaboration with other projects

3.1 Links within SafetyNet

SafetyNet Work Package 4 - Independent Accident Investigation Recommendations
The main objective of this WP is to elaborate guidelines for a good practice with the aim to ensure independence in terms of data quality and also in terms of the output of these databases. Obviously, these guidelines will only concern public databases or public use of any European databases. According to the database application, the recommendations proposed will be applicable either in input, for instance with a focus on data quality or on temporal stability of the gathering method, or in output, with a particular interest in the correct use of results.

Due to the nature of this task, WP4 and WP5 have been liaising closely to benefit from the knowledge and experience available. Particular emphasis has been given to issues of independence for data collection techniques and data storage. Technical meetings have been run in parallel and with many similar partners being involved in WPs 4 and 5, this has enabled sharing of information and a close relationship during the development of both projects.

SafetyNet Work Package 6 - European Road Safety Information System
The European Commission has stressed several times in its communications the relevance of the dissemination of data and knowledge. Much information exists which is not optimally used mainly because the individuals involved do not know of its existence or the information itself is not easily accessible. The situation needs improvement, because good information supports rational decision taking. A European Road Safety Information System, demonstrating, for example, tables, graphs and impartial and research-based knowledge to the user's desks, is one of the ways to meet the objective of proper dissemination of knowledge and by so doing contributes to better road safety policies and less road casualties on European roads.

Data from WP5 will be available for presentation within this information system. It is anticipated that this will be in the form of hyperlinked tables with prepared data (similar to those used to display key data from CARE on the EC's website). Further discussion will take place between WPs 5 and 6 when the data collection phase of WP5 commences.

SafetyNet Work Package 7 – Data Analysis and Synthesis
The ultimate goal of WP7 is to perform analyses on data that will be gathered in SafetyNet WPs 1, 2, 3, and 5. It is important to obtain an agreement across the work packages involved, about the content and objectives of the analyses performed in WP7.

Therefore it has been decided that a one-day workshop will be held, involving partners from WP5 and 7, but also from WP1, 2, and 3, in order to discuss this issue. Partners involved in WP7 will provide the other WP's with propositions/examples of analyses (method, content) that could be performed, as a basis for discussion. The workshop will be conceived as a brainstorming.

For practical reasons, it has been proposed that some of the partners working in each WP will attend the workshop. For additional practical reasons, it has been decided that half of the workshop day will involve WP7-WP1, 2, and 3 discussions, while the other half will involve WP7-WP5 discussions. The workshop will take place in February 2006, exact dates to be announced shortly. Feedback on the sampling method and on the protocols will also be formulated.

3.2 Links with external projects

European Accident Causation Study (EACS)
This research project was conducted by ACEA (Association of European Car Manufacturers) from 1996 to 2001 in three phases, the first of which was supported by the European Commission (1996-1998). The objective was to make an accident causation database upon the data collected by teams in different countries (F,D,NL,I,S,FIN). A specific coding system for data collection was developed. The project was steered by the ACEA Task Force Accidentology and ACEA sub contracted to CEESAR (France) for the co-ordination of the project. At the end of the chain, CEESAR subcontracted for the data collection and coding teams. At the end of the project, the database contained 2000 accident cases.

Contact has been made between SafetyNet WP5 and the former EACS steering committee. SafetyNet WP5 has been given access to the EACS data coding book (EACS Volume 1: the database questionnaire. Version 3, September 2001) to take advantage of the previous work that has been done on making consistent data protocols coming from different institutes.

As EACS ended 3 years ago, there is no longer an EACS steering committee or any kind of group working permanently on EACS. It is difficult, therefore, to organise a formal relationships between EACS and SafetyNet WP5. However, it has been demonstrated that some of the partners who were involved in the EACS project are involved in SafetyNet. Additionally, many more former EACS partners are involved in other potential projects (e.g. TRACE[5]). It has been suggested that it would be highly beneficial to establish close relationships between the SafetyNet and TRACE projects and organise common workshops, especially but not exclusively, on the topic of data collection and identification of countermeasures. Consequently, tasks undertaken together could fit into these workshops, corresponding to join activities of the two potential EU projects.

[5] TRACE ("Traffic Accident Causation in Europe"), refers to a project bid that is currently in negotiation phase with the European Commission for commencement in early 2006.

Motorcycle Accident In-Depth Study (MAIDS)
In order to better understand the nature and causes of powered two-wheeler (PTW) accidents, the Association of European Motorcycle Manufacturers (ACEM) with the support of the European Commission and other partners conducted an extensive in-depth study of motorcycle and moped accidents during the period 1999-2000 in five sampling areas located in France, Germany, Italy, Netherlands and Spain. A total of 921 accidents were investigated in detail, resulting in approximately 2000 variables being coded for each accident. From these data, all the human, environmental and vehicle factors, which contributed to the outcome of the accident, were identified.

Collaboration between the MAIDS team and SafetyNet WP5 has been initiated. The proposed idea of a joint workshop is being developed through ACEM. Working together in such a way would be most beneficial for sharing our experiences and information about the main countermeasures identified in MAIDS. Such collaboration would enrich our mutual knowledge and develop our capacity of action towards safety improvement.

European Truck Accident Causation (ETAC) Study
ETAC, initiated by the European Commission and the International Road Transport Union (IRU), was launched in order to set up a heavy goods vehicle accident causation study to identify the real causes of accidents involving trucks and to give guidance to policy and decision makers for future actions which could contribute to the improvement of road safety. The study is resulting in a database containing road accident causation criteria, which is established in a scientific, unbiased, independent manner, and which enables the identification of truck accidents.

A meeting was held between ETAC and SafetyNet (WP5 and WP4) to define the possible synergies between the participants' activities in the field of accident causation studies, methodologies and database design. Details of the ETAC and SafetyNet projects were exchanged, specifically regarding aspects of technical detail, including sampling and quality control. There was a general discussion of the difficulties in guaranteeing independence and producing analyses that truly reflect representative causes of accidents on European roads. It was decided that the main players would build on this initial contact to continue technical discussions to their mutual benefit. It was agreed that the group would meet again in late 2005 to exchange more information.

Human Centred Design for Information Society Technologies Network of Excellence (HUMANIST NoE)
The goal of HUMANIST is to create a European Virtual Centre of Excellence on HUMAN centred design for Information Society Technologies applied to Road Transport (IVIS and ADAS), with a coherent joint program of activities, gathering research, integrating and spreading activities. Integrating activities will permit the NoE to manage and to consolidate the NoE structure by promoting the mobility of researchers, by optimising the pool of existing experimental infrastructures, by setting up electronic tools (common database,

web-conference, e-learning) for knowledge sharing. Spreading Activities will allow the NoE to spread widely the knowledge from HUMANIST, by organising debates with projects on eSafety and relevant stakeholders, by promoting harmonisation with standardisation and pre-normative bodies, by setting up training programmes, and by promoting and disseminating research results to a wide audience. HUMANIST is sponsored and supported by the European Conference of Transport Research Institutes (ECTRI) and Forum of European Road Safety Research Institutes (FERSI) networks.

Contact has recently been made between SafetyNet WP5 and HUMANIST. We were invited to make a presentation at the workshop organised by HUMANIST on "User group specific impacts of IVIS (In-vehicle information systems) and ADAS (Advanced driver assistance systems): Recent research on expectations, opinions, facts end developments". The presentation covered the work performed in SafetyNet on data collection for the analyses of accident causation and was also connected to the specific problems of ITS (Intelligent Transport Systems), and presented the current specifications of the database and offered a link to support the user needs of HUMANIST partners. This presentation formed a good starting point for a discussion to specify associations between SafetyWP5 and the HUMANIST NoE.

Chapter 4: Dissemination activities

Table 19 demonstrates how information about SafetyNet's WP5 has been disseminated to a wide audience across Europe since May 2004. Table 20 indicates future planned dissemination activities.

Table 19 Dissemination activities for SafetyNet WP5

Date	Type	Type of Audience	Countries addressed	Size of Audience
Vienna, May 2004	Presentation to World Injury Congress: Burden of Injury Conference	Experts in road and vehicle safety	EU member states	100+ people
Hanover, September 2004	Presentation to PENDANT workshop	Experts in road and vehicle safety	EU member states	50 people
Hanover, September 2004	Presentation to ESAR Conference	Experts in road and vehicle safety	EU member states	130 people
Munich, September 2004	Presentation to SARAC Committee	Experts in road and vehicle safety	EU member states	15 people
Helsinki, October 2004	Presentation to Finnish accident investigators	Finnish experts in road and vehicle safety	Finland	250 people
Autumn 2004	Paper in Journal of Injury Control and Safety Promotion	Experts in road and vehicle safety	EU member states	>5000
Rimini, November 2004	Presentation to "2nd International Road Safety Exhibition"	Experts in road and vehicle safety	EU member states	50+ people
Rimini, November 2004	Presentation of WP 5 to "2nd International Road Safety Exhibition	Experts in road and vehicle safety	EU member states	50+ people
Brussels, December 2004	Presentation to High Level Group on Road Safety	National Representatives	Al EU Member States	60+ People
Brussels, November 2004	Presentation of WP 5 at the National Experts meeting	Experts in road and vehicle safety	EU member states	30 people
Brussels, January 2005	Presentation to ETAC project coordinators	Experts in road and vehicle safety	EU member states	11 people
Leipzig, April 2005	Presentation to Road Safety Forum	Experts in vehicle safety	EU member states	60 people
Warsaw, May 2005	Presentation to Advanced Passive Safety Network	Experts in passive safety	EU member states	30 people

Table 19 Dissemination activities for SafetyNet WP5 (continued)

Date	Type	Type of Audience	Countries addressed	Size of Audience
Mykonos, June 2005	Presentation to SafetyNet partners	Experts in road and vehicle safety	EU member states	60 people
Funchal, Sept 2005	Presentation to HUMANIST Network	Experts in active safety	EU member states	30 people

Table 20 Future dissemination activities for SafetyNet WP5

Planned Date	Type	Type of Audience	Countries addressed	Size of Audience
Prague, May 2006	SafetyNet Conference	Road Safety community	All EU countries	

Chapter 5: Future plans

Summary of Task 5.1 ongoing activities

- To develop and pilot the methodologies and protocols for an intermediate level fatal accident study, primarily directed to support road and vehicle safety policy.
- To undertake a thorough review of the pilot of the fatal accident data collection process.
- To finalise the development of a database and validation system for the data collection activities.
- To commence fatal accident data collection activities.

5.1 Training

Training on WP5.1 was conducted in Gothenburg in mid-October 2005. The schedule is indicated here:

Introduction
- Project objectives
- Timeline of activities and project plan
- Partners' obligations
- Sampling strategy

What's expected from a case

Database information
- Inputting data in the forms
- Browsing data (going through the codified accident and modifying the record if needed)

Case examples
Using the database – example cases for data entry with discussion afterwards

Review of pilot checklist

5.2 Pilot

For the pilot, each partner will undertake 5-10 real cases and these cases will be reviewed just after the pilot phase is over, by the partners, to check consistency of activities. Precise details of this subtask will be decided upon at the next Technical Meeting scheduled for 17 October 2005. The pilot will commence in November 2005.

5.3 Review of procedures

The review phase will be undertaken in early 2006 and will examine the pilot of each WP5 partner in terms of whether each has successfully managed to

retrieve high quality data according to the requirements of the study. This stage in the project will also be used to assess the usability and effectiveness of the database. Any amendments that need to be made to the methodology will be made at this time.

5.4 Full data collection

Data collection activities will then be commenced by all partners in Spring 2006. The database implementation and data validation processes will be active. The areas covered will give a set of crash details that are typical of collisions in each of the seven countries involved. In the main data collection period the fatal accident database will be a representative sample of between 2% and 10% of the fatal crashes in each country covered, depending on the magnitude of the fatal population.

Appendix: Glossary of Variables

Accident Level Data Description

Variable	Value	Notes	Notes: Is this variable collected for 5.1 and/or 5.2 and/or found in Riser (R), Pendant (P) etc.?
Centre Name	1 = Chalmers 2 = DITS 3 = MUH 4 = INRETS 5 = VALT 6 = TNO 7 = VSRC		
Case number		IT 1001 to IT 1999 = Italy FD2001 to FD 2001 = Finland FR 3001 to FR 3999 = France GE 4001 to GE 4999 = Germany NE 5001 to NE 5999 = Netherlands SW 6001 to SW 6999 = Sweden UK 7001 to UK 7999 = United Kingdom	
Accident date	dd/mm/yyyy		
Time of day	24-hour clock (00.00-24.00)	Entered automatically after the date is entered.	
Accident day	1 – 7 999 = Unknown	Monday = 1, Tuesday = 2, Wednesday = 3, Thursday = 4, Friday =5, Saturday = 6, Sunday = 7.	
Hit and run	1 = Yes 2 = No 999 = Unknown	Was the accident a hit and run event?	
Animal involvement	1 = Yes 2 = No 999 = Unknown	Was an animal involved in causing the accident, e.g. animal ran in front of vehicle?	
Number of distinct events	Box for numerical entry 2 digit numeric	How many separate events occurred during the accident (NB each impact is a separate event)	
Accident Type Classification (GDV number)	3 digit code as specified in separate GDV PowerPoint file.	101-199 = Driving accident 201-299 = Turning off accident 301-399 = Turning in / crossing accident 401-499 = Pedestrian accident 501-599 = Accident with parking vehicles 601-699 = Accident in lateral traffic 701-799 = Other accident types	
Sequence of events	One or more to be selected from a list in a drop down box	The harmful events in chronological order regardless of the severity of injury or property damage. See	

		detailed definition of choices below.	
First harmful event	One to be selected from a list in a drop down box	The first event that causes physical or material harm to the vehicle or its users regardless of its severity. See detailed definition of choices below.	
Most harmful event	One to be selected from a list in a drop down box	The major event that causes the most physical or material damage for each vehicle (including shoe vehicle) involved in the accident. An event that causes a fatality takes precedence over an event that causes an injury, and this in turn takes precedence over an event that only causes property damage. See detailed definition of choices below	5.1 only

Sequence of events; First harmful event; most harmful event can all be divided into non-collision events, collision with non-fixed object events and collision with fixed-object events. The definitions of all the proposed events are below.

Non-collision events

Choice of response	Definition	Source
1 = Overturn/rollover	When a vehicle rotates 90° or more, side-to-side or end-to-end. For motorcycles, laying the motorcycle down on its side is sufficient to code overturn if damage or injury is produced.	FARS
2 = Fire/explosion	Unlikely to be first harmful event – but we leave it here anyway, as is a possibility	
3 = Immersion	Vehicle completely under the water's surface.	
4 = Gas inhalation	Includes injury or death from carbon monoxide fumes leaking from a motor vehicle in transport.	FARS
5 = Fell/jumped from vehicle	When falling or jumping (not suicide) from the vehicle causes damage or injury. For example, a passenger of a motor vehicle in transport leans against the car door, it opens and the passenger falls out and is injured by the fall.	FARS
6 = Injured in vehicle	Use where an occupant is injured during an unstabilised situation without a collision. Examples: a pick-up truck breaks sharply and its load crashes through passenger compartment injuring or killing driver; or a part of the engine comes loose and bounces back into its own vehicle.	FARS
7 = Thrown or falling object	An object that is thrown or falls onto a vehicle in motion, example tree falling onto moving vehicle.	
8 = Pavement/road surface irregularity (pothole, grooved, grates)	Road surface irregularity that causes damage to the vehicle or the users, e.g. cyclists falls from bike after riding over a pothole.	
9 = Vehicle occupant struck or run over by own vehicle	Use when occupant falls or comes out of vehicle and is struck or run over by that vehicle. Does not apply to occupants ejected during overturns.	FARS
10 = Jack-knife	Applies to a condition that occurs to an articulated vehicle, (any vehicle with a trailing unit(s) connected by a hitch; e.g., truck tractor or single-unit truck with one or more trailers, car pulling a caravan or boat on a trailer etc.) while in motion. The condition reflects a loss of control of the vehicle by the driver in which the trailer(s) swerves from its normal straight-line path behind the power unit.	FARS

11 = Cargo/equipment loss or shift	Vehicle struck by falling/shifting cargo or anything set in motion by another vehicle in transport	
12 = Equipment failure (blown tyre, brake failure, etc.)	Failure of some part of the vehicle	
13 = Separation of units	Separation of main vehicle from trailer or caravan	
14 = Ran off road – off side	Vehicle left the road on the off side. Off side- the side of the vehicle away from the curb. In UK right-hand side, other Europeans left	
15 = Ran off road – near side	Vehicle left the road on the near side. Near side- the side of the vehicle nearest the curb; UK left-hand side, other Europeans right.	
16 = Cross median/centreline	Vehicle leaves its carriageway and crosses over in to the oncoming carriageway	
17 = Downhill runaway	When a vehicle's breaks fail on a downhill section of road cause the vehicle to runaway down the slope. Mainly applies to lorries and caravans.	
18 = Vehicle went airborne	When a vehicle leaves the ground.	
19 = Other non-collision	As an example, driving off a cliff, where damage is not the result of an overturn or collision with an object.	FARS

Collision with motor vehicle

Choice of response	Definition	Source
20 = Motor vehicle in transport on same roadway	When one motor vehicle collides with another motor vehicle on the same roadway or the same side of a dual carriageway.	FARS
21 = Motor vehicle in transport on other roadway	Differs from above in that it applies to events where a vehicle leaves one roadway and enters a different roadway, having a collision with a motor vehicle in transport on a different roadway. Example: one vehicle travels across the median of a dual carriageway, enters oncoming traffic and is struck; or, when a vehicle travelling on an overpass, leaves the roadway and strikes or is struck by vehicle travelling on a roadway below.	FARS
22 = Parked motor vehicle (not in transport)	Collision between moving vehicle and parked vehicle. Parked motor vehicles include vehicles parked outside the roadway and those parked on the roadway in lanes not designated for travel at the time of accident.	FARS
23 =Working construction,	Use this code when a motor vehicle strikes a construction vehicle in the process of working and not "in transport."	FARS
24 = Maintenance or utility vehicles	Use this code when a motor vehicle strikes a construction vehicle in the process of working and "in transport."	
25 = Motor vehicle struck by falling/shifting cargo or anything set in motion by another motor vehicle in transport		

Collision with Objects Not Fixed

Choice of response	Definition	Source
26 = Pedestrian	Collision between moving vehicle and pedestrian	CARE
27 = Non-Motorist on Personal Conveyance	Personal conveyance is a human-powered, non-motorized device not propelled by pedalling; such devices are included even when motorized. Includes	FARS

	rideable toys (roller & inline skates, skateboards, push chairs, scooters), motorized rideable toys (motorized skateboards, scooters, and toy cars), devices for personal mobility assistance (zimmer frames, motorized and non-motorized wheelchairs, handicapped scooters).	
28 = Pedal Cycle	Collision between moving vehicle and cyclist	
29 = Railway Train	Collision between moving vehicle and train. Collision between a vehicle and a tram should be classified in other object (not fixed).	
30 = Animal	A collision with animals (domesticated or wild) that are not themselves being used as transportation or to draw a wagon, cart or other transport device.	FARS
31 = Ridden Animal or Animal-Drawn Conveyance	Used for collisions with animals being used as transportation. This includes ridden animals and animals (or teams of animals) drawing a transport device (sleighs, carts, etc)	FARS
32 = Other Object (not fixed)	e.g., fallen tree, already laying in roadway; construction cones or barrels on road (temporary).	FARS

Collision with Fixed Object

Choice of response	Definition	Source
33 = Boulder	A rock of sufficient mass that when struck by a motor vehicle moves very little and remains basically intact.	FARS
34 = Building		
35 = Impact Attenuator/Crash Cushion	A device for controlling the absorption of energy released during vehicle collision (“crash cushions”). It’s most common application involves the protection of fixed roadside objects such as bridge piers, at motorway exit ramps, entry to toll booths etc. Examples include barrels filled with water or sand, and plastic collapsible structures.	FARS
36 = Bridge Pier or Abutment	Support structures; most likely to be struck by vehicles passing under bridges. Bridge Abutment - wall supporting the ends of a bridge and composed of stone, concrete, brick or wood. Bridge Pier - column of stone, concrete, brick, steel or wood for supporting a bridge between abutments.	FARS
37 = Bridge Parapet End	Components of the upper portion of bridges. The end of a low wall which runs along the outer most edge of the roadway or pavement on the bridge.	FARS
38 = Bridge Parapet	Components of the upper portion of bridges. A wooden, brick, stone, concrete or metal fence-like wall which runs along the outermost edge of the roadway or pavement on the bridge or a rail constructed along the top of a parapet.	FARS
39 = Bridge Overhead Structure	Used when striking the bottom of a bridge while travelling on a roadway underneath it. Mainly applies to tall vehicles passing under low bridges.	FARS
40 = Guardrail Face	A low barrier running along the edge of a road shoulder either on the right or the left and which is primary composed of metal (plates, cable, mesh, box beam, etc.). A guardrail is not the same as a concrete traffic barrier; it is differentiated from it by the material making up the greatest part of the longitudinal portion of the structure.	FARS
41 = Guardrail End	When a vehicle strikes the end of a guardrail. Guardrails can have a separate flat or rounded piece of metal	FARS

	attached to the end.	
42 = Concrete Traffic Barrier	Refers to the longitudinal traffic barriers constructed of concrete and located on the outside of the road surface, in a median, or at entry/exit ramps. This includes all temporary concrete barriers regardless of location (i.e. temporary barriers during road works). This also includes concrete barriers used to protect the bridge pier or abutment. Concrete walls (vertical side surfaces) do not apply here.	FARS
43 = Other Traffic Barrier	Used for all other longitudinal barriers such as wood or rock and unknown barrier composition types.	FARS
44 = Highway/Traffic Sign Post/Sign	When the post supporting a traffic sign, or the sign itself, is hit by a motor vehicle in transport. Includes mile/kilometre markers.	FARS
45 = Traffic Signal Support/Signal	When the post supporting a traffic signal, or the traffic signal itself is hit by a motor vehicle.	
46 = Overhead Sign Support/Sign	When the sign supported is above the motorway. The difference between traffic sign and overhead sign is the location of the sign (overhead or the side of the road).	FARS
47 = Luminary/Light Support	Supports for roadway lighting systems, not including other private lighting systems (e.g., car park lights). Support does not include other fixed objects to which lighting is affixed (e.g., telephone poles).	FARS
48 = Utility Pole	Electrical, Telephone, Cable and other utility pole-type supports.	FARS
49 = Other Post, other pole, or other supports	Posts other than highway signs. (E.g., reflectors on poles along side of roadway, parking meters, flag poles, etc.).	FARS
50 = Culvert	Any structure under the roadway generally made of concrete or metal which allow water to flow below the road.	
51 = Kerb	A concrete or asphalt structure up to 30 cm in height which borders the roadway. It provides drainage control and pavement edge delineation. The face of the curb may be sloped or vertical.	FARS
52 = Ditch	A small trench or depression, with or without water, that runs alongside roadways or fields.	
53 = Embankment – Earth	Raised structures to hold back water, to carry a roadway, or the result of excavation or washout (including erosion) that is faced with earth. An embankment can usually be differentiated from a wall by its incline, whereas a wall is usually vertical.	FARS
54 = Embankment – Rock, Stone, or Concrete	Raised structures to hold back water, to carry a roadway, or the result of excavation or washout (including erosion) that is faced with rock, stone or concrete.	FARS
55 = Embankment – Material Type Unknown	Raised structures to hold back water, to carry a roadway, or the result of excavation or washout (including erosion) that is faced with an unknown material.	FARS
56 = Fence	Includes the fence posts. A fence can be made of wood, chain link, stone, etc. (not hedges serving as containment for property).	FARS
57 = Wall	A primarily vertical (+ 15° from vertical) structure composed of concrete, metal, timber, or stone which is not part of a building or a fence but typically is used for retaining earth, abating noise, and separating areas but not for containment (as is the primary function of a fence).	FARS
58 = Tree (Standing Tree Only)	Used when a vehicle strikes a standing tree. If a vehicle strikes a tree lying in the roadway, use code	FARS

	"Other Object (Not Fixed)." If a tree falls on a vehicle as it is passing by, use code "Thrown or Falling Object."	
59 = Snow Bank	Used when snow fall and/or road ploughing creates essentially fixed barriers of snow/ice which are not snow-covered earth or rock embankments.	FARS
60 = Other Fixed Object	This is used when the object is fixed (considered a permanent structure) and is not described by any of the other fixed object codes. Includes utility wires and "guy" wires attached to utility poles.	FARS
999 = Unknown	This is used when it is not known what the first or most harmful event is. For example, if a series of harmful events occurred, and it's unclear which event was first.	FARS

Related factors in the accident	One or more to be selected from a list in a drop down box	Other factors that are *explicitly* mentioned by the investigating officer in the police report. If a witness says that an event occurred it should not be selected. See detailed definition of choices below.	5.1 cases only

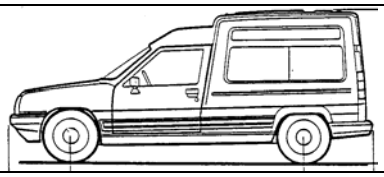
Related Factors definitions – 5.1 cases only

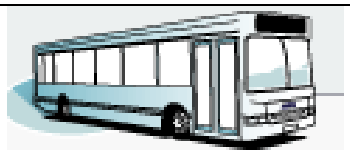
Choice of response	Definition	Source
1 = Inadequate warning of exits, lanes narrowing, traffic controls etc.	Includes "inadequate warning" of any type. Inadequate warning due to obscured signs. Inadequate warning due to signs temporarily down, lack of necessary sign for merge, diverge. Not a construction site situation.	FARS
2 = Shoulder design or condition	A (hard) shoulder is a reserved area alongside a road or a motorway. Includes only situations pertaining to actual design or condition of the shoulder. Soft shoulder or shoulder collapsing. Inadequate shoulder width. Shoulder at different level from the roadway (drop-off, lifted, not flat).	FARS
3 = Other construction-created condition	Includes inadequate maintenance conditions, (i.e., potholes, ruts in roadway) moving/changing signs. Addition of barricades. Change in traffic patterns, merging of lane.	FARS
4 = No or obscured pavement/road marking	Includes any road surface marking situations. New asphalt has covered old road markings. Roadway marking or surface has worn off. Ice/snow/mud obscuring road surface markings.	FARS
5 = Surface under water	Includes any surface under water. Permanently under water, i.e. fords. Temporarily under water, i.e. flooded areas.	FARS
6 = Inadequate construction or poor design of roadway, bridge etc.	Pertains to original design of the different aspects of a trafficway (i.e., roadways, bridges, medians, guardrails, traffic barriers etc). Blind intersections due to highway design, not due to visual obstructions e.g. trees. Improper banking, lack of a lane for merging. Inadequate road surface (dirt, gravel surfaces, etc.); however, this must not be inferred; must be explicitly stated in police report as a "factor."	FARS
7 = Surface washed out (caved in, road slippage)	Only environmentally caused situations. Destruction of a section of roadway by water (flooding, heavy rains) or other cataclysms (earthquakes, etc.).	FARS
8 = Motor vehicles in transport	"Something set-in-motion" includes persons and	FARS

struck by falling cargo, something that came loose from, or something that was set in motion by a vehicle	vehicles. Something set in-motion denotes that a vehicle "has control of" or "is attached/connected" to the object. An example of "control of" is a vehicle determining the direction of a driverless vehicle. An example of "attached to" is a vehicle overriding another vehicle. "Set-in-Motion" generally applies to non-fixed objects, and extends to vehicles parked and "in transport."	
888 = Other	Any other related factor explicitly mentioned in the police report that can not be classified above.	
999 = Unknown		

Crash participants	Box for numerical entry 1 – 17 888 = Other 999 = Unknown	Number of parties involved and kind (e.g. 2 cars, 1 bicycle, 1 pedestrian) See below for definition of crash participants	
Other comments		.	

Definition of crash participants

Crash Participant	Definition	Source	Example
1 = Sedan/Saloon car	Hinged , horizontal boot	P	
2 = Hatchback car	Load area has sloping door hinged at roof level	P	
3 = Station Wagon/ Estate Car	Near vertical door that extends down to the load area floor	P	
4 = Sports/convertible car	Low seated car with near-horizontal steering column or car without fixed roof	P	
5 = Car derivative	A van or pickup based on a car design	P	
6 = Off road car	Designed to be driven off-road	P	

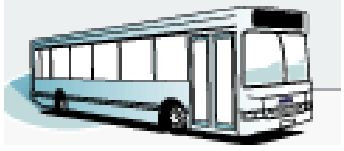
7 = Sports Utility vehicle	Urban “off road” vehicles		
8 = People carrier/van	Passenger carrying vehicle, often with removable seats, can seat between 5-7 people		
9 = Car (body style unknown)	4 wheeled car with unknown body type		
10 = Truck (including HGV – heavy goods vehicle)	Motor vehicle with at least four wheels, with a permissible gross vehicle weight of over 3.5 tonnes, used only for the transport of goods. With or without a trailer. Also known as HGV.	CARE	
11 = Bus	Motor vehicle with at least four wheels, used for transporting people. Public or private use. Seating for more than 8 passengers.	CARE	
12 = Agricultural vehicle	Motor vehicle for agricultural use, with wheels or caterpillar tracks, with at least two axles.	CARE	
13 = Motorcycle	Motor vehicle with two wheels, with an engine size of more than 50 cc.	CARE	
14 = Bicycle	Vehicle with at least two wheels, without engine, moved by pedals or hand cranks.	CARE	
15 = Other 2 wheeled vehicle	Motor vehicle with two wheels, with an engine size of less than 50 cc ex e.g. mopeds	CARE	

16 = 3 wheeled vehicle	3 wheeled motorised vehicle		
17 = Shoe vehicle (pedestrian)	A person on foot, includes a person on roller skates or a skateboard, pushing a bike or a pushchair		
888 = Other	Other than the mentioned vehicles	CARE	
999 = Unknown vehicle			

Vehicle Level Data Description

Variable	Value	Notes	Notes: Is this variable collected for 5.1 and/or 5.2 and/or found in Riser (R), Pendant (P) etc.?
Number of occupants/riders in the vehicle	2 digit numeric	Please enter the number of occupants or riders in the vehicle	
Vehicle type	1-10 888 = Other 999 = Unknown	Car = 1, van = 2, truck = 3, bus = 4, agricultural vehicle = 5, motorcycle = 6, bicycle = 7, other 2 wheeled vehicle = 8, 3 wheeled vehicle = 9, shoe vehicle (pedestrian) = 10	

Definition of Vehicle Types

Vehicle Type	Definition	Source	Example
1 = Car	Any body style, e.g. hatch, sedan etc.		
2 = Van including people carrier	Passenger carrying vehicle, often with removable seats, can seat between 5-7 people		
3 = Truck	Motor vehicle with at least four wheels, with a permissible gross vehicle weight of over 3.5 tonnes, used only for the transport of goods. With or without a trailer. Also known as HGV.	CARE	
4 = Bus	Motor vehicle with at least four wheels, used for transporting people. Public or private use. Seating for more than 8 passengers.	CARE	
5 = Agricultural vehicle	Motor vehicle for agricultural use, with wheels or caterpillar tracks, with at least two axles.	CARE	

6 = Motorcycle	Motor vehicle with two wheels, with an engine size of more than 50 cc.	CARE	
7 = Bicycle	Vehicle with at least two wheels, without engine, moved by pedals or hand cranks.	CARE	
8 = Other 2 wheeled vehicle	Motor vehicle with two wheels, with an engine size of less than 50 cc ex e.g. mopeds	CARE	
9 = 3 wheeled vehicle	3 wheeled motorised vehicle		
10 = Shoe vehicle (pedestrian)	A person on foot, includes a person on roller skates or a skateboard, pushing a bike or a pushchair		
888 = Other	Other than the mentioned vehicles	CARE	
999 = Unknown vehicle			

Vehicle make		Vehicle make written out. See reference for vehicle make below	P

Reference for vehicle make

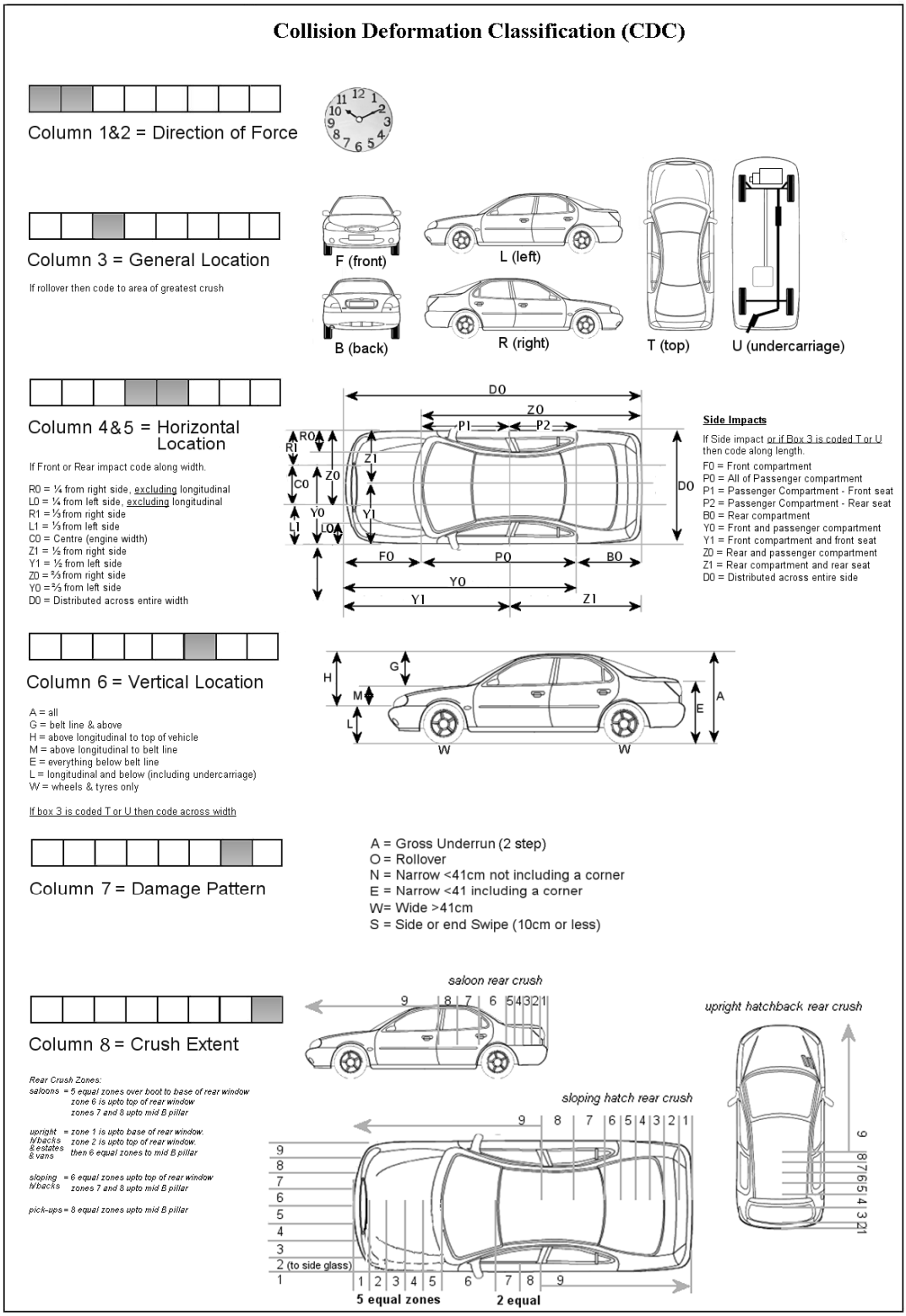
Acura	Ferrari	Lotus	Rolls Royce
Alfa Romeo	Fiat	Mahindra	Rover
Alpina	Ford	Maserati	Saab
Aston Martin	GMC	Maybach	Seat
Audi	Honda	Mazda	Skoda
Austin Morris	Hummer	Mercedes-Benz	Smart
Austin Rover	Hyundai	MG	SsangYong
Bentley	Infiniti	MINI	Subaru
BMW	Innocenti	Mitsubishi	Suzuki
Bugatti	Isuzu	Morgan	Talbot
Buick	Jeep	Nissan	Toyota
Cadillac	Jaguar	Oldsmobile	Trabant
Chevrolet	Kia	Opel	Triumph
Citroen	Lada	Peugeot	TVR
Cobra	Lamborghini	Piaggio	Vauxhall
Dacia	Lancia	Plymouth	Volvo
Daewoo	Land Rover	Pontiac	VW
Daihatsu	Lexus	Porsche	Wartburg
DeTomaso	Ligier	Proton	Wiesmann
Dodge	Lincoln	Renault	Other

Vehicle model		Vehicle model written out i.e. C200 cdi, instead of C-Class for a Mercedes	P
Car body style	1 = Sedan/saloon 2 = Hatchback 3 = Wagon/Estate 4 = Sports 5 = Derivative 6 = Off-Road/SUV 7 = Convertible 8 = MPV/People Carrier 777 = Not applicable 888 = Other 999 = not known	The general shape of the vehicle. - Has a hinged, horizontal boot. - The load area has sloping door hinged at roof level - Has a near-vertical door that extends down to the load area floor. - Low seated car with near-horizontal steering column - A van or pick-up based on a car design - Designed to be driven off-road or a Sports Utility Vehicle - A car without B or C pillars above waist height, nor any cant rails or fixed roof. - Multi Purpose Vehicle	P
Vehicle Colour	Text only max of 20 letters	Primary colour only i.e. blue.	P
Driven wheels	1 = Front 2 = Rear 3 = 4-wheel drive/All-wheel drive 777 = Not applicable 999 = Unknown	All-wheel drive - power is distributed to all four of the vehicle's tyres, all of the time. 4-wheel drive - power is delivered to all four wheels, only when the driver requests it.	P
Drive of vehicle	1 = Left hand drive 2 = Right hand drive	The location of the steering wheel in the vehicle.	P

	777 = Not applicable 888 = Other 999 = Unknown		
Vehicle length (mm)	Numeric 0-99999	If not on the accident documentation, this information can be obtained from reference sources.	5.1 only
Vehicle width (mm)	Numeric 0-9999	If not on the accident documentation, this information can be obtained from reference sources.	5.1 only
Vertical alignment	1 = Uphill 2 = Downhill 3 = Flat 777 = Not applicable 888 = Other 999 = Unknown	Vertical alignment of road (from the perspective of the vehicle's original travelled direction) before the accident.	
Trailer used	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	If any type of trailer, e.g. was anything being towed by the vehicle?, please indicate here.	
Engine power (in kW)	Numeric 0-999		
Year of manufacture	4 digit numeric i.e. 2003		P
Kerb weight (kg)	5 digit numeric i.e. 11200 = 11,2t	Refer to manufacturers data – kerb weight includes vehicle weight + driver (75kg) + 1 full tank of petrol Only since 1996 the driver in included in the manufacturers kerb weight data.	P 5.1 only
Number of axles (trucks only)	1 digit numeric Or not applicable	If trailer used, towing vehicle only. Tandem axle = 1 axle if axles are less than 1m apart	5.1 only
Are vehicle defects possibly causal in the accident	1 = Yes 2 = No 999 = Unknown	Did the vehicle have a problem which caused the incident? If so, comment in the comments bob about the type of defect, including suspected defects.	5.1 only
Has the vehicle passed the mandatory technical inspection	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Choose "No" if vehicle is overdue for an inspection.	5.1 only
Driver manoeuvre prior to accident	1 = General driving 2 = Overtaking 3 = Junction 4 = Stopping/slowing 5 = Starting to move 6 = Changing lane 7 = Driving on/over line 777 = Not applicable 888 = Other 999 = Unknown	What type of manoeuvre did the driver perform in the vehicle directly before the incident?	
Vehicle heading at accident	1 = North 2 = North east 3 = East	Referring to the vehicle's direction of travel before the accident.	

	4 = South east 5 = South 6 = South west 7 = West 8 = North west 777 = Not applicable 999 = Unknown	This is often indicated on a scene plan.	
Hazardous cargo	1 = No 2 = Yes, placarded 3 = Yes, not placarded 4 = Yes, unknown if placarded 777 = Not applicable 999 = Unknown	Relates to whether the vehicle is carrying something dangerous on board and if a description of the contents is displayed.	5.1 only
Was hazardous cargo discharged	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Was the dangerous cargo released from the vehicle in the impact?	5.1 only
Number of impacts	2 digit numeric 777 = Not applicable 999 = Unknown	Rollover or contact with the ground during a rollover is not classified as impact. Contact with an object before, after or during the rollover sequence is classified as an impact.	P 5.1 only

Vehicle Damage CDC column 3 (General location)	alpha-numeric code: B = Back F = Front L = Left side R = Right side T = Top U = Underside 777 = Not applicable 888 = Other 999 = Unknown	See reference sheet on next page for CDC	P
Vehicle Damage CDC column 4&5 (Horizontal location)	alpha-numeric code: R0, L0, R1, L1, C0, Z1, Y1, Z0, Y0, D0, F0, P0, P1, P2, B0, Y0, Y1, Z0, Z1, D0 777 = Not applicable 888 = Other 999 = Unknown	See reference sheet on next page for CDC	P
Vehicle interacted with	1 = Car 2 = Van 3 = Truck 4 = Bus 5 = Agricultural vehicle 6 = Motorcycle 7 = Bicycle 8 = Other 2 wheeled vehicle 9 = 3 wheeled vehicle 10 = Shoe vehicle (pedestrian) 777 = Not applicable 888 = Other 999 = Unknown	What other vehicle was involved in the collision? For definitions, see previous 'Definition of Vehicle Types' page 11-12	
Fire occurrence	1 = Yes, inside passenger compartment 2 = Yes, outside passenger compartment 3 = Yes, outside and inside passenger compartment 4 = No 777 = Not applicable 999 = Unknown	Was there a fire in the vehicle?	5.1 only
Water submersion	1=Yes 2=No 3=Unknown	Was the vehicle submerged in water?	5.1 only



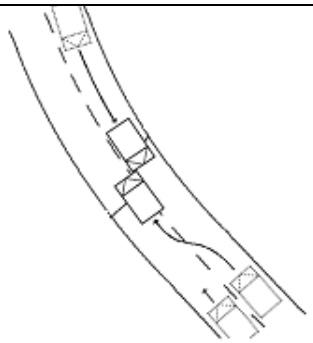
Object struck off road	2 digit code 777 = Not applicable 888 = Other 999 = Unknown	For definitions of each, see pages 2-7 as these options are the same for sequence of events, harmful events etc. See reference sheet below for use	

		with data analysis.	

Reference for Object struck off road

ID	Order	Object struck off road type	Object struck off road detail
20	2	Collision with Motor vehicle	Motor vehicle in transport on same roadway
21	2	Collision with Motor vehicle	Motor vehicle in transport on other roadway
22	2	Collision with Motor vehicle	Parked motor vehicle (not in transport)
23	2	Collision with Motor vehicle	Working construction
24	2	Collision with Motor vehicle	Maintenance or utility vehicles
25	2	Collision with Motor vehicle	Motor vehicle struck by falling/shifting cargo or anything set in motion by another motor vehicle in transport
26	3	Collision with object not fixed	Pedestrian
27	3	Collision with object not fixed	Non-motorist on personal conveyance
28	3	Collision with object not fixed	Pedal cycle
29	3	Collision with object not fixed	Railway train
30	3	Collision with object not fixed	Animal
31	3	Collision with object not fixed	Ridden animal or animal-drawn conveyance
32	3	Collision with object not fixed	Other object (not fixed)
33	4	Collision with fixed objects	Boulder
34	4	Collision with fixed objects	Building
35	4	Collision with fixed objects	Impact attenuator/crash cushion
36	4	Collision with fixed objects	Bridge Pier or Abutment
37	4	Collision with fixed objects	Bridge Parapet End
38	4	Collision with fixed objects	Bridge Parapet
39	4	Collision with fixed objects	Bridge Overhead Structure
40	4	Collision with fixed objects	Guardrail Face
41	4	Collision with fixed objects	Guardrail End
42	4	Collision with fixed objects	Concrete Traffic Barrier
43	4	Collision with fixed objects	Other Traffic Barrier
44	4	Collision with fixed objects	Highway/Traffic Sign Post/Sign
45	4	Collision with fixed objects	Traffic Signal Support/Signal
46	4	Collision with fixed objects	Overhead Sign Support/Sign
47	4	Collision with fixed objects	Luminary/Light Support
48	4	Collision with fixed objects	Utility Pole
49	4	Collision with fixed objects	Other Post, Other Pole, or Other Supports
50	4	Collision with fixed objects	Culvert
51	4	Collision with fixed objects	Kerb
52	4	Collision with fixed objects	Ditch
53	4	Collision with fixed objects	Embankment – Earth
54	4	Collision with fixed objects	Embankment – Rock, Stone or Concrete
55	4	Collision with fixed objects	Embankment – Material Type Unknown
56	4	Collision with fixed objects	Fence
57	4	Collision with fixed objects	Wall
58	4	Collision with fixed objects	Tree (Standing Tree Only)
59	4	Collision with fixed objects	Snow Bank
60	4	Collision with fixed objects	Other Fixed Object
777	5	Not applicable	
888	5	Other	
999	5	Unknown	

Collision type	1 = No collision with motor vehicle in transport 2 = Front to rear (included rear end) 3 = Front to front (includes head on)	Sideswipe example:	

	4 = Front to side, right angle (included broadside) 5 = Front to side – angle direction not specified 6 = Sideswipe, same direction 7 = Sideswipe, opposite direction 8 = Rear to side 9 = Rear to rear 10 = Other (end-swipes and others) 777 = Not applicable 999 = Unknown		
ABS	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Anti lock brakes, system that prevents wheels from locking (stopping to turn) while braking	P
ESP	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Electronic stability programme. A system that tries to prevent a vehicle from swerving (under- or over steering) i.e. by braking individual tires	P
TCS	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Traction control system. A system that prevents the driven wheels from spinning while accelerating.	P
ACS	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Active cornering system. A system that facilitates cornering and makes it safer. I.e. reduces body lean in curves, turns the headlamps towards the curve.	P
LDW	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Lane Departure Warning. A system that warns a driver (i.e. by noise or vibration) that he is leaving his lane.	
CSS	1 = Yes 2 = No 777 = Not applicable 999 = Unknown	Collision sensing system. This system senses when a crash is inevitable und puts passengers und vehicle in a ready-for-crash-position/state (puts seats and steering wheel in an optimal position, closes electric windows, activates belt pretension.)	

List of alternative terms that you might encounter, used to describe vehicle safety equipment:

Explanation alternative terms used often found in:

ABS	Anti lock brakes	ABV	
ADR	Automatic distance regulation	Distronic	VW
ASC	Drive slip control	ASR, ASC, TCS, TRC	BMW
ASR	Traction control system	ASC, TCS, PTM, TRC	
DSC	Dynamic Stability Control	ESP, PSM, VSC	BMW
ESP	Electronic stability programme	DSC, PSM, VSC	
GRA	Cruise control	Tempomat	VW
LDW	Lane Departure Warning		
PSM	Porsche Stability Mangement	ESP, PSM	Porsche
PTM	Porsche Traction Management	ASR, ASC, TCS, TRC	Porsche
SWA	Lane changing assistant		
TCS	Traction Control System	ASR, ASC, PTM, TRC	Ford
TRC	Traction Control	ASR, ASC, TCS, PTM	Toyota
VSC	Vehicle Stability Control	ESP, PSM, DSC	Toyota
CSS	Collision Sensing System		Mercedes
ACS	Active Cornering System		Land Rover

Road Level Data Description

Variable	Value	Notes	Notes: Is this variable collected for 5.1 and/or 5.2 and/or found in Riser (R), Pendant (P) etc.?
Road classification	1 = Motorway 2 = Road (rural) 3 = Road (urban) 4 = Main Street 5 = Street (other) 888 = Other 999 = Unknown	Public road with dual carriageways and grade separated intersections Public road with dual or single carriageways in rural areas Public road with dual or single carriageways in urban areas Can be both rural or urban road Public (smaller) road in urban areas	
Number of lanes	2 digit numeric	Total number of driving lanes on both side of road – Turn/filter lanes are excluded.	
Speed limit (kph)	3 digit numeric	In kilometres per hour	
Type of speed limit	1 = Permanent 2 = Temporary 3 = Variable (dynamic) 4 = Advisory 888 = Other 999 = Unknown	The posted speed limit is always the same The permanent speed limit is changed at, for example, road works, maintenance or construction sites The permanent speed limit is increased or decreased during certain hours of the day, for example rush hours The permanent speed limit is often higher than the advisory	
Roadway surface type	1 = Concrete 2 = Blacktop 3 = Asphalt 4 = Brick or block 5 = Slag, gravel or stone 6 = Dirt 888 = Other 999 = Unknown		
Construction / maintenance zone	1 = Construction zone	Roadway construction includes construction within the road or	FARS

		roadside area. The work is considered long-term - more than one day of work marked with signs, barricades etc. day and night	
	2 = Maintenance zone	Roadway maintenance includes pavement marking, painting guardrail, cleaning ditches, mowing grass, etc. The work is considered as short-term - one day during daylight	FARS
	3 = Utility zone	An area for utility work such as electrical work within the right-of-way. The utility company must perform the work	FARS
	4 = Work zone, type unknown	Use this code when there is insufficient information to distinguish between construction, maintenance and utility	FARS
	777 = Not applicable 888 = Other 999 = Unknown		
Traffic signal control/device Check this out – some of these responses are odd?	1 = No Control 2 = Regulatory signals 3 = School zone signs 4 = Warning signs 888 = Other 999 = Unknown		
Traffic signal functioning device	1 = No controls 2 = Device working properly 3 = Device not working 999 = Unknown		
Light condition	1 = Daylight 2 = Dusk/twilight 3 = Dawn 4 = Darkness 5 = Darkness with artificial light 888 = Other 999 = Unknown	 In the evening In the morning No artificial lights lit If the artificial light is lit when it is dark it is coded as a "darkness with artificial light" otherwise it is "darkness"	
Road conditions	1 = Dry		

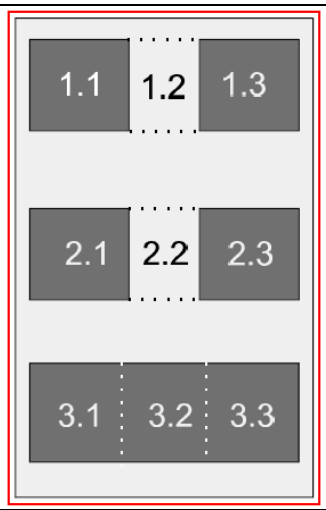
	2 = Wet 3 = Ice 4 = Snow 888 = Other 999 = Unknown	Remember it can be wet even if it's not raining Both thin and thick are coded 'ice' 'Black ice' should also be noted here	
Weather conditions	1 = Rain 2 = Hail 3 = Freezing rain 4 = Snow 5 = Wet Snow/slush 888 = Other 999 = Unknown	Often happens when the air temperature is around zero degrees and the road surface temperature is zero or below which makes the rain freeze when it impacts the road surface	
Strong Winds	1 = No 2 = Yes 999 = Unknown		
Fog	1 = Yes 2 = No 999 = Unknown		
Pedestrian Facility	1 = None Present but evidence of desire line 2 = On a crossing facility sited after bend or junction 3 = On a refuge in the centre of the road 4 = On a pedestrian crossing 5 = On a footbridge		
Surface contaminants	1 = Mud 2 = Leaves 3 = Oil 4 = Diesel 5 = Gravel 6 = Discarded load 888 = Other 999 = Unknown	If another vehicle has dropped its load into the roadway NB. If contaminants have hidden the road markings, please indicate this in the comments box	
Transient factors	1 = Earlier accident 2 = Other distraction(s)	NB. Please describe in the	5.1 only

	outside vehicle 3 = Distraction(s) inside vehicle 888 = Other 999 = Unknown	comments box what the distraction was, e.g. animal in roadway, advertising, children inside car etc.	
Signing related to the accident	1 = Yes 2 = No 999 = Unknown	Was inadequate signing contributory to the accident? NB. Add issues in the comments box if yes	
Traffic calming	1 = Yes 2 = No 999 = Unknown	Was traffic calming present at the scene? E.g. Road humps, chicanes etc.	
Cycle facilities	1 = None 2 = Advanced cycle lane separated by kerbing 3 = Cycle lane on footway 4 = Cycle lane separated by road markings 5 = Cycle (toucan) crossing	At the location of the accident, were cycle facilities present? The cycle lane is on a higher level compared to the carriageway The cycle lane is on the same level as the carriageway and only separated by road markings	
Traffic way flow	1 = Not physically divided (two-way trafficway) 2 = Not physically divided (with two-way continuous left-turn lane) 3 Divided roadway, median strip (without traffic barrier) 4 = Divided roadway, median strip (with traffic barrier) 5 = One-way trafficway 6 = Entrance/Exit 888 = Other 999 = Unknown		
Roadway Alignment	1 = Straight road 2 = Bend to left 3 = Bend to right 999 = Unknown		
Junction Also include 'Staggered junction'	1 = No junction		

 or 'Junction on bend ahead' 	2 = T junction 3 = Y junction 4 = Crossroads (+ junction) 5 = Roundabout	  Four road crossing  	

Road User Level Data Description

Variable	Value	Notes	Notes: Is this variable collected for 5.1 and/or 5.2 and/or found in Riser (R), Pendant (P) etc.?
Road user classification	1 = Driver 2 = Passenger 3 = Pedestrian		
Age	Years	If less than 1 year write '0' and put true age in comments box	(P)
Gender	1 = Male 2 = Female 999 = Unknown		
Impairment	1 = Alcohol 2 = Drugs 3 = Drugs and Alcohol 4 = Medication 5 = Fatigue 6 = Combination of the above 888 = Other 777 = None of the above 999 = Not known	Something that affected the abilities of the Road User.	5.1 only
Resident in country?	1 = Yes 2 = No 999 = Unknown	Did the Road User live in the country where the incident took place?	
Familiar with traffic system?	1 = Yes 2 = No 999 = Unknown		
Crash avoidance manoeuvre	1 = No avoidance manoeuvre reported 2 = Braking (skid marks evident) 3 = Braking (no skid marks evident) 4 = Steering (evidence or stated) 5 = Steering and braking (evidence or stated) 6 = Other avoidance manoeuvre 7 = Not reported/inconclusive (by police) 777 = Not applicable 888 = Other 999 = Unknown	Did the Road User take any action to avoid the incident happening?	5.1 only

Seat position	1 = 1.1 → 60 = 15.4 777 = Not applicable 999 = Not known		(STAIRS)
Seat direction	1 = Front facing 2 = Side facing 3 = Rear facing 999 = Not known 777 = Not applicable	Which direction is the seat facing?	Similar to (P)
Seatbelt	1 = Used 2 = Use claimed 3 = Not used 777 = Not applicable 999 = Not known	Complete only if the seat was occupied - if evident - if not evident but claimed - provide evidence of non-use.	(P)
Airbag availability	1 = Present 2 = Not present 777 = Not applicable 999 = Unknown	Complete only if the seat was occupied Was an airbag present for the seat concerned?	5.1 only
Airbag deployment	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Complete only if the seat was occupied Was an airbag deployed?	5.1 only
Police injury severity	1 = Fatal 2 = Serious 3 = Slight 4 = Not injured 999 = Not known	Injuries or complications directly due to the accident within 30 days of the crash. See Injury Classification list	(P)
Body region most heavily injured	2 Alpha digits	Body region and body part code	(P)
Ejection	1 = None 2 = Partial 3 = Full 777 = Not applicable 999 = Not known	Was the occupant thrown from within the vehicle as a result of the collision?	5.1 only
Entrapment/extrication	1 = None 2 = Partial 3 = Full 777 = Not applicable 999 = Not known	Was the casualty trapped within the vehicle due to deformation of the structure or non-functioning of vehicle components and therefore required rescue?	5.1 only Part of (STAIRS)
Taken to hospital	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was the casualty taken to hospital as a result of the accident?	5.1 only
Hospitalisation duration	3 digit numeric	No. of complete days in hospital	5.1 only

			(P)
Died at scene/en route	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Did the casualty die at the scene of the incident or on the way to hospital?	5.1 only
Death date	dd/mm/yyyy		5.1 only
Suspicion of alcohol involvement	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	For 5.1: According to the accident report For 5.2: According to the accident investigator(s) on the scene	
Police reported other drug involvement	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		
Failure of driver/rider to take action	1 = yes 2 = no 999 = Unknown 777 = Not applicable	Did the driver or rider fail to do something to avoid the incident?	5.1 only
Was person's behaviour causal?	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was the behaviour of the Road User the reason for the incident?	5.1 only
Child restraint fitted	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was a child restraint fitted? This is a specially fitted seat or harness for a child.	
Child restraint used	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was the child restraint being used at the time of the crash?	(P)
CRS type	1 = Infant carrier 2 = Child seat 3 = Booster seat 4 = Booster cushion 5 = Impact shield 6 = Carrycot 7 = Integral child seat 8 = Seatbelt fitting device 9 = Child harness 10 = Booster seat with separate backrest 777 = Not applicable 888 = Other 999 = Unknown	Infant carrier Child seat Booster seat  Booster cushion Impact shield 	Similar to (P)
M/cycle helmet worn	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was the rider of the motorcycle wearing a motorcycle helmet?	
Helmet type		Description	5.1 only

Partial leathers (jacket)	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		5.1 only
Partial leathers (jacket and trousers)	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		5.1 only
Motorcycle gloves	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		5.1 only
Motorcycle boots	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		5.1 only
Reflective items worn	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		
Bicycle helmet worn	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Was the rider of the bicycle wearing a bicycle helmet?	
Helmet type		Description if known	5.1 only
High visibility clothing	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		5.1 only
Thick clothing	1 = Yes 2 = No 999 = Unknown 777 = Not applicable	Wearing jacket, coat(thick), only wearing T-shirt, shirt (thin)	5.1 only (STAIRS)
Reflective items worn	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		
Pedestrian-vehicle-interaction	1 = None 2 = Glancing Impact 3 = Scooped up and came off bonnet 4 = Thrown to nearside 5 = Thrown to offside 6 = Moved sideways across bonnet offside to nearside 7 = Moved sideways across bonnet nearside to offside	2 = quick and light impact at an angle 3 = pedestrian is thrown up onto the bonnet of the vehicle	5.1 only

	8 = Thrown over vehicle 9 = Thrown straight forward 10 = Thrown to side pavement 11 = Thrown into traffic lane 12 = Hit a second time by the same vehicle 13 = Hit by another vehicle 777 = Not applicable 888 = Other 999 = Unknown		
Pedestrian company	1 = On own 2 = In small group 3 = In large group 777 = Not applicable 888 = Other 999 = Unknown	Was the pedestrian alone at the time of the incident, or with other people?	5.1 only
Pedestrian disabilities	1 = Deaf 2 = Blind/partially sighted 3 = Requires use of support to walk 777 = Not applicable 888 = Other 999 = Not known	Did the pedestrian have any disabilities? Select all that apply	
Reflective items worn	1 = Yes 2 = No 999 = Unknown 777 = Not applicable		
Information source	1 = Interview at accident scene 2 = Interview at hospital 3 = Interview at home 4 = Telephone interview 5 = Police records 6 = Eyewitness report 777 = Not applicable 888 = Other 999 = Not known		