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BRoWSER: Base-lining Road Works Safety on European Roads

Benefits Case

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CEDR Call2012: Safety
BRoWSER: Base-lining Road Works Safety on European Roads

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Executive summary

The BRoWSER project has the overall aims of:

- Collecting data on worker injuries and near misses by country, road administration and employer
- Understanding the optimum road works layouts that enable road users to approach, travel through and exit works without causing injury to workers and others

This report outlines the principles and benefits of a EuRoWCas (European Road Worker Casualty) database. In order to inform this report, a consultation exercise was undertaken in which National Road Authorities (NRAs), Local/Regional Road Authorities and other relevant organisations were interviewed. In total, twelve organisations were interviewed across nine European countries.

The current situation was analysed based on the consultation findings. In order to facilitate this analysis, a maturity matrix was developed with eleven indicators across relevant areas of working. This provided the opportunity to score the Road Authorities, this score indicating their progress along the maturity model. The results highlighted variance in the current situation in each of the nine countries. Some countries had made good progress in one area, however were behind in others. No countries scored perfectly across all indicator areas, showing that there is room for improvement in all countries where interviews were undertaken.

The EuRoWCas vision has been explored and described. The main aim of EuRoWCas is to provide a database and analysis system to help Road Authorities take an evidence-led approach to managing road worker safety, and will allow benchmarking of safety. In addition, a database will provide a mechanism for sharing information on safe road work practices. Four main data types are proposed for the database: Road worker injury and near miss data, road user collision data at road works, information about road work schemes and exposure data. It has been recommended that standard and enhanced data requirements are developed in Work Package 2. The standard dataset would allow basic analyses and benchmarking to be undertaken while Road Authorities develop their processes to collect enhanced data. The types of analyses that could be undertaken have been explored: these being at the individual agency level, European level and research/meta-analyses. The type of system that would be ideally used to facilitate these analyses is described, this being a web-based system with the ability to control access through user name and password combinations, validation capability, analysis functionality and an in-built audit system.

Through the consultation process, the main benefits for a EuRoWCas database have also been identified. These are:

- Benchmarking and monitoring performance
    - Benchmarking internally within a country or region, monitoring performance over time and impact of policy changes
    - Benchmarking internally between contracting firms and/or by project, monitoring performance over time and impact of policy changes
    - Cross-European comparison and assessment (similar sized countries), monitoring performance over time and impact of policy changes
- Determining effectiveness of approach/principles:
    - European level: Larger data source for European research on Road Worker Safety

  - European level: Evidence base to inform European standards and policy development – source of data on what is effective and what is not
  - Individual level: Source of data for small nations to use in informing their own policy development
- Case building
  - Case building for investment
  - Quantification of resourcing of road worker safety and comparison between countries

The organisations interviewed were extremely positive about the potential for implementing EuRoWCas, each highlighting a number of benefits. All of the interviewees recognised that the availability of consistent data on road worker safety across Europe would help them to improve safety for road workers.

Some implementation challenges were also identified in this deliverable. Along with each of these, a mitigation strategy has been suggested. This should help to ensure that the concept develops in a pragmatic manner.

The information presented in this report will feed into the next BRoWSER Work Package: Establishment and definition the input data requirements.

1 Introduction

The project Base-lining Road Works Safety on European Roads (BRoWSER) was initiated as a response to the Description of Research Need (DoRN) for the CEDR Transnational Road Research Programme Call 2012 on Safety.

The aim of the CEDR Transnational Research Programme (2012 call) seeks “to significantly reduce risks to road workers with an objective of Zero Harm”. BRoWSER addresses two of the topics within the 2012 Call under the heading of “Safety of road workers and interaction with road users”. These are:

- Collect data on worker injuries and near misses by country, road administration and employer
- Understand the optimum road works layouts that enable road users to approach, travel through and exit works without causing injury to workers and others

The aim of the BRoWSER project is to help National Road Authorities (NRAs) take a data-led approach to managing road worker safety. This knowledge of how road workers are exposed to risk from accidents and road user error is essential for effective safety management as it allows the real risks to be managed rather than those perceived to be the problem. The BRoWSER project focuses on the interaction between road workers and traffic and will collect data for road worker accidents, incidents and near misses (where available) alongside data for road works practices, network characteristics and road user accident data for road works.

BRoWSER will use data to help road authorities understand how, when and where their workers (or people working for them) are harmed when working on the roads. In addition, BRoWSER will investigate differences between how works are carried out and whether this leads to potential confusion of road users, a higher risk of accidents and so makes road workers more vulnerable.

This report aims to:

- Demonstrate the principles and benefits of a European Road Worker Casualty Database (EuRoWCas)
- Provide a benefits case for EuRoWCas, highlighting the particular desires and aspirations of NRAs from across Europe

This report has the following Sections:

- Section 2 provides a summary of the current situation in several countries across Europe
- Section 3 provides an overview of the EuRoWCas vision
- Section 4 provides a summary of the benefits associated with the introduction of a EuRoWCas database
- Section 5 provides an outline of the primary implementation challenges
- Section 6 provides some conclusions and recommendations
- Appendix A provides the notes from the consultation exercise

2 Current situation

The current situation regarding the collection, analysis and use of road worker safety data across several European countries has been assessed through a consultation exercise. In total twelve interviews have been undertaken across nine European countries. Ten of the interviews have been written up and these are provided in Appendix A. These 10 interviews together with the information from the two that are partially complete, allows for the analysis of the current situation in this Section of the report, and for the summary of benefits in Section 4.

A simple scoring matrix has been developed to capture the stages of maturity for a number of indicators. This is provided in Table 2.1.

Table 2.1: Maturity scoring system

Maturity Stage	1	2	3	4	5
Road worker safety strategy, vision and targets	No formal road worker safety strategy, targets or vision in place		Basic formal strategy and targets in place		Comprehensive formal road worker safety strategy, vision and targets in place based on understanding of the real issues from data analysis
Road worker injury data	No road worker injury data collected		Road worker injury data are collected however these are either not comprehensive or are not available in a database		Comprehensive road worker injury data collected systematically and available in a database
Road worker near miss data	No road worker near miss data collected		Road worker near miss data are collected however these are either not comprehensive or are not available in a database		Comprehensive road worker near miss data collected systematically and available in a database
Road user data	Road user data not available or not analysed		Road user data available but not possible to easily identify collisions that have occurred at road works		Comprehensive road user data available (including relevant contributory factors) and collisions at road works can be identified and attributed to a particular scheme

Maturity Stage	1	2	3	4	5
Information about road work schemes implemented	Information about road works is not collated and not held in a database		Information on road works is recorded for other purposes and could be recorded/made available		Comprehensive database containing information about all road works, including Temporary Traffic Management (TTM) layouts, timings, duration etc.
Other data	Exposure data such as road lengths, traffic volumes are not collected systematically across the network		Some basic exposure data are available (e.g. partial traffic volume data or road length data)		Traffic volumes and road lengths readily available for analysis Speed data at road works are available
Data availability and sharing	Significant issues with gaining access to relevant data sources		Access to the majority of data is possible		All data are accessible and in convenient format, formal data sharing protocols established where necessary
Data analysis and identification of trends	No systematic data analysis undertaken		Some data analysis undertaken to identify safety issues and emerging trends		Complex analyses undertaken to identify safety issues, emerging trends and to determine risk factors (e.g. by analysing road user data and road work data together)
Monitoring performance and reporting against targets	No performance monitoring is undertaken		Performance reported on a regular basis though consistent performance metrics are not used		Performance metrics established and monitored systematically
Managing road worker safety	Management of road worker safety through anecdotal evidence and experience		Policy and strategy based on road worker injury and near miss data, though formal analyses are not used		Formal analyses used to inform policy and to manage emerging issues, and these are clearly documented
Data used for comparison of contractors and contractual incentives	No comparisons made between contractors		Performance monitored, though not in a systematic manner		Comparisons made using informative metrics and incentives in contracts to leverage improved performance

Table 2.2 provides the maturity scoring for each country where consultation has been undertaken.

Table 2.2: Maturity scoring by country

	HA[1], England	Transport Scotland	Welsh Government	DRDNI[2], Ireland	NRW[3], Germany	Hessen, Germany	FRA[4] Belgium	WRD[5], Belgium	NRA[6], Ireland	RWS[7], Netherlands	DARS[8], Slovenia
Road worker safety strategy, vision and targets	4	1	2	3.5	2	2	2	2	3	2	3
Road worker injury data	5	3	2	4	3	3	2	2	3	3	4
Road worker near miss data	5	3	2	4	1	1	1	1	1	3	3
Road user data	5	5	5	5	3	4	3.5	3.5	3.5	3	3
Information about road work schemes implemented	3	3	3	3	3	4.5	4.5	4.5	4	4.5	3.5
Other data	5	4	5	4	4	4	5	4	4	4	4
Data availability and sharing	4	3	3	3	3	4	3	3	3	3	3.5
Data analysis and identification of trends	3.5	2	1	3.5	3	3	3	3	3	2.5	3
Monitoring performance and reporting against targets	5	2	1	4	1	1	1	1	4	1	3
Managing road worker safety	5	2	2	4	2	2	2	2	3	2.5	4
Data used for comparison of contractors and contractual incentives	5	1	1	1	1	1	1	1	3	1	1
Total score (out of 55)	**49.5**	**29**	**27**	**39**	**26**	**29.5**	**29.5**	**28**	**34.5**	**29.5**	**35**

These scores are a subjective assessment based on the consultations undertaken. It should be noted that the scores are a reflection of the current situation and higher scores are not "good" and lower scores are not "bad".

[1] Highways Agency
[2] Department for Regional Development Northern Ireland
[3] Land Nordrhein-Westfalen
[4] Flemish Road Agency
[5] Walloon Road Directorate
[6] National Roads Authority
[7] Rijkswaterstaat
[8] Družbe za avtoceste v Republiki Sloveniji

3 The EuRoWCas vision

3.1 The vision

The vision for EuRoWCas is to provide a state of the art database and analysis system that will serve the National and Regional Road Authorities in Europe who have responsibility for road works and road worker safety. The aim is to assist Road Authorities in managing the safety of their road workers effectively through data-led policy development.

In addition it will provide an easy to use but comprehensive mechanism for the sharing of information, benchmarking of performance and the identification of best practices so that safety of road works in Europe can be improved and optimised towards the objective of "Zero Harm".

3.2 What the future looks like

The aim of EuRoWCas will be to get all relevant Road Authorities in Europe to collect effective and high quality information on incidents on their networks which occur at maintenance and road works. The project will ultimately result in access to timely and comprehensive intelligence on the occurrences of injuries and near misses. This will mean that a far better understanding of the specific range of risks and specific hazards associated with different road work types can be established in future, allowing much improved responses and practises to be introduced.

The processes which will need to be developed to introduce EuRoWCas will bring a clear focus on the importance of collecting data on road works and worker safety. It will also provide an opportunity to share best practices in both data collection and also the operation of the actual works. The collection of facts relating to basic work practises and exposure levels will enable organisations to assess their current performance and to identify and adopt approaches that work.

3.3 Data

The data to be included in the EuRoWCas database is road worker injury and near miss data (this will include near misses at road works for road users).

The EuRoWCas database will specify 'standard' and 'enhanced' data requirements for each of these data types. 'Standard' EuRoWCas data will be defined as a core of the most important and key information fields which can be collected relatively easily and which will provide a potential for high level benchmarking of performance. Countries and organisations that are not yet collecting data will use this as a starting point towards collecting more comprehensive data.

'Enhanced' EuRoWCas data set will include an enlarged number of fields which will give more insight into safety factor for road work schemes and practises. This is likely to include greater exposure data which will allow more precise benchmarking of particular factors and in-depth research on the relative impact of different road work layouts and policies on safety performance.

The information collected should be 'code' based as-far-as-possible rather than narrative or free text fields. This serves two main purposes:

- Coded data are more accurate and easy to record
- Utility of data and ability to analyse data systematically is improved

3.3.1 Road worker injury and near miss data

Information about injuries and near misses would include[9]:

- Location of incident
- Severity level of incident (standardised definitions to be developed)
    - Fatal
    - Serious injury
    - Minor injury
    - Damage only
    - Near miss
- Name of contractor
- Circumstances of the incident (e.g. date, time, type of road, type of road works/maintenance occurring, weather, vehicle type involved, etc.)
- Information about each casualty (e.g. medical consequences, time off work, number of casualties etc.)
- Estimation of costs of the incident and impact on road work duration
- Underlying contributory factors

It will be important to ensure that sensitive/personal information is not shared via EuRoWCas.

3.4 Data use

The availability of the information through the EuRoWCas system should allow a range of analyses to be performed at different levels. These are described in the sections that follow.

3.4.1 Individual agencies

Individual agencies should be able to perform a range of analyses to support policy/safety decisions and ways of working. The data should provide an indication of the relative and actual levels of risks associated with different work zone layouts and styles of working; so decisions of specific practices adopted for works can be much better informed.

The dataset could also be used to monitor and evaluate performance objectively. This would allow identification of the impact of different policy decisions and monitoring of performance in relation to various performance metrics and targets.

The dataset should also allow comparison of performance of different contractors. This would allow Road Authorities to set targets introduce contractual levers for safer performance (e.g. bonus payments for good performance etc.). It would also allow Road Authorities to identify badly performing contractors and ensure efforts are directed to improve performance.

[9] To be determined in more detail in WP2

3.4.2 European level

At a national and Pan-European level, agencies and countries should be able to benchmark their overall road worker safety performance against *meaningful* metrics that take into account exposure data such as road work lengths/traffic volumes/time on site etc.

This would help countries to identify if they are performing well, but also to allow them understand any performance deficits and the opportunity to improve with better practices.

3.4.3 Meta-analysis and projects

Analysis of the entire data could also be used to identify which are general safe and unsafe practices and also which layouts perform best and worst.

It would also be possible to gain an understanding of what practices are being carried out in different countries and by different organisations since this should be captured clearly in EuRoWCas. It may be that some layouts which are known to be particularly unsafe may be being used in some jurisdiction when better alternatives are available.

Analysis of incident characteristics and patterns could be contrasted between different agencies (e.g. the good versus bad performers) and this may provide insights which can identify better practices regarding worker and road user safety.

3.5 The EuRoWCas system

3.5.1 General features

The simplest and most cost-effective way to make EuRoWCas available to stakeholders will be to serve the system from an internet cloud type service. Effectively there will be one installation on a web server which will be accessed by users with appropriate security username and password combinations, through a web address. The users will interact with the system through an internet browser user-interface.

The types and sensitivities of information held in the databases may affect the security that needs to be implemented in the software and also the server type used, which could impact upon the cost of providing the service.

This type of web-based system can access open source or low cost internet mapping for showing the location of geographically coded schemes or incidents.

3.5.2 Main functions

Data entry

A primary requirement would be to provide an easy to use method for inputting data. The software should permit agencies or their sub-contractors to directly input required data into the system via an internet page, although alternative ways of working such as paper-based collection or the use of mobile technology could also be adopted.

The database system should also be capable of linking to web-served incident data and/or allow import of standard data which may be being entered into existing systems at present. Data processing may be required to ensure compatibility.

Validation and cross checking

The system should validate data as far as possible as it is entered or imported; this will include sense checks on dates entered (e.g. start dates are not in the future) and checks that all key fields have been populated with compatible content.

Access

The system would require various access levels, for example:

- Contractors:
  - Data input
  - Basic reporting and analysis of own organisations' performance only
- Road Authorities:
  - Access to data entered concerning their own jurisdiction for all contractors
  - Reporting and analysis functionality for all data from own jurisdiction
  - Basic overview data (no sensitive information/contractor names etc.) for all other members of EuRoWCas
- Central administration/CEDR group
  - Data quality checking
  - Benchmarking, reporting, analysis
  - Assigning access levels
- Authorised individuals
  - Full access to all data for all members for agreed research purposes (sensitive information removed)

Analysis

The system would ideally have analysis functionality including the ability to produce tables, reports, graphics, spatial analyses, etc.

Audit

The system would require an audit function so that all activities are logged.

4 Benefits

Benefits for a EuRoWCas database have been identified from the consultation interviews. General benefits include an improvement in data quality and utility for road worker safety analyses. In addition, access to information on good practices in road worker safety data collection and a set of standard definitions.

Where interview write-ups are complete, all ten organisations consulted believed that availability of consistent data on road worker safety across Europe would help them to improve safety for road workers.

A summary of the benefits relating to what can be done with the EuRoWCas database is provided in Table 4.1. The benefits are provided alongside evidence for the benefit obtained via the interviews. In addition to this summary a write up of each interview can be found in Appendix A.

Table 4.1: Summary of benefits

What we would like to do with the data	What are the benefits	Organisation	Evidence from interviews
Benchmarking and monitoring performance			
Benchmarking internally within a country or region, monitoring performance over time and impact of policy changes	Monitor performance over time and determine performance levels Track impact of policy changes on performance	HA, England	Development of formalised metrics to monitor performance and trend analysis methods.
		NRA, Ireland	Determine what practices and policies are successful and what could be done better.
		Transport Scotland	Monitoring performance over time. Pin-pointing the real issues and emerging trends.
		FRA, WRD, Belgium	Highlight new challenges effectively. Raise awareness of road contractors / road workers.
Benchmarking internally between contracting firms and/or by project, monitoring performance over time and impact of policy changes	Identify under-performing contractors and use data to inform improvements	HA, England	Already performing analyses to compare performance by region and contractors.
Cross-European comparison and assessment (similar sized countries), monitoring performance over time and impact of policy changes	Make meaningful comparisons in performance and identify potentially useful policies	HA, England	Demonstration of safety record and performance levels.
		Transport Scotland	Comparing performance with other countries and highlighting the need to improve. Understanding what has been done elsewhere and the impact of policies/equipment.
		DRDNI, Northern Ireland	It would be useful to know how NI Roads Service is performing against others in UK and Europe. If found to be performing well, then this will act as corporate assurance. If not performing well then this would provide impetus for improvement.

What we would like to do with the data	What are the benefits	Organisation	Evidence from interviews
		NRW, Germany	Benchmarking on good practices. Harmonisation of road work practices.
		FRA, Belgium	Benchmarking on good practices. Harmonisation of road work practices.
		WRD, Belgium	Compare results to be able to objectively confirm or invalidate operational practices on the basis of their associated risk. Focus the experts' and working groups' works on measures have a high potential.
		DARS, Slovenia	Benchmarking on good practices. Raising awareness of road users, road workers, to wider society.
		NRA, Ireland	Current strategy is based on best practices in other countries. The data and database would help benchmark with other countries and compare current performance with the European standard. Allow assessment of whether or not they can do better.
		RWS, Netherlands	Determine what others are doing if they are performing better.
Determining effectiveness of approach/principles			
European level: Larger data source for European research on Road Worker Safety	Co-financing of fundamental research Consistent dataset available for fundamental research	FRA, Belgium	The Flemish Road Agency already co-finances the CEDR Research Programme.
		WRD, Belgium	In-depth analysis of practices to assess risks linked to road work types and operational practices.
		NRA, Ireland	This would allow more significant research to be performed than data from just one country and will facilitate more research on road worker safety than has been completed so far.

What we would like to do with the data	What are the benefits	Organisation	Evidence from interviews
European level: Evidence base to inform European standards and policy development – source of data on what is effective and what is not	Greater source of data for research into the impact of different policies and standards on road worker safety	HA, England	Determine what does and does not work.
		Welsh Government	Gathering of data to underpin policy.
		FRA, Belgium	Improve operational practices (work scheme) for better road user and road worker safety through lessons learned. Harmonisation of road work practices.
		Belgium Federation of Road Contractors	Understand accident circumstances to improve operational practices and procedures.
		WRD, Belgium	Objective confirmation of the benefits/dis-benefits of different operational practices. Focus experts and working groups on high potential measures. Calculation of the risk exposure by road work types.
		NRA, Ireland	Would help create a standardised / consistent work zone format across Europe (or Harmonisation or road work practices).
		NRW, Germany	After comparisons, look for the best way to improve safety for road workers.
		RWS, Netherlands	Identify the risk factors for road works. Look at the actual impact of different practices on overall safety levels.
		DARS, Slovenia	Benchmarking on good practices. Improvement of operational practice. Understanding new layout design (e.g. self-explaining road works), new equipment etc.

What we would like to do with the data	What are the benefits	Organisation	Evidence from interviews
Individual level: Source of data for small nations to use in informing their own policy development	Opportunity for smaller countries to benefit from learning from other countries	FRA, Belgium and WRD, Belgium	Both road agencies are CEDR members and are therefore interested to use data shared transnationally to inform their own policy development; including Road safety policy.
		Welsh Government	It would allow access to more data. In Wales there simply isn't sufficient number of incidents upon which to base policy decisions.
		NRA, Ireland	The current strategy is based on best practices in other countries. The data and database would therefore provide more information to further develop the current strategy.
Case building			
Quantification of resourcing of road worker safety and comparison between countries	NRAs can determine an appropriate level of resourcing for road worker safety based on those countries with a good road worker safety record	Welsh Government	How much other countries are spending on road worker safety would be useful to make the case for increased investment.
Case building for investment	With increased understanding of the effectiveness of different policies, it becomes easier to make the case for increased investment in road worker safety	HA, England	Help with case building and evidencing recommendations.
		Welsh Government	It would be good to know what does and does not work. This will help with case building and evidencing recommendations.
		DRDNI	As a result of benchmarking, if as country is not doing well then it may mean greater attention is given to road worker safety and increased investment may be sought.

5 Implementation challenges

The main challenges or implementation obstacles have been identified through the consultation process. These are presented in Table 5.1 along with potential mitigation strategies.

Table 5.1: Implementation challenges

ID	Challenge	Mitigation
1	It may be challenging to achieve consistency of data collection since there may be a legislative basis for collection of particular data.	Ensure good understanding is reached of the legislative requirements in each county and ensure EuRoWCas requirements are flexible enough to deal with these. Where legislative changes are required, ensure that changes are started as soon as they are identified.
2	NRAs or other organisations (e.g. police/contractors) may not wish to change their current data collection programme since there will be operational costs associated.	Ensure that, as far as possible, templates for data collection and databases are provided to reduce associated costs. Consider joint procurement of required database/software.
3	With the introduction of new processes data may be poor quality	Ensure planning for sufficient training.
4	Small NRAs may find it difficult to justify any expenses associated with joining EuRoWCas.	Ensure recommended solution is cost effective and costs to individual NRAs are minimised through shared development.
5	NRAs may not be interested in the concept of EuRoWCas or may not commit to it.	Provide opportunities to NRAs to be involved in the project throughout its duration through consultation and discussion. Ensure benefits of approach are communicated.
6	Benefits may not be realised as expert support may be required for NRAs (or other organisations) to adopt new data collection processes.	Provide on-going technical support to NRAs that require assistance to adopt new data collection processes.
7	EuRoWCas implementation may require a permanent organisation or steering committee to be established (e.g. IRTAD).	Plan for the future running of the EuRoWCas database, potentially via CEDR
8	There may be data protection/sensitive data issues.	Ensure sensitive data fields are not required as part of EuRoWCas (e.g. number plates/casualty names) and establish data sharing protocols. Ensure consultation with NRAs and other organisations to determine issues and potential resolution.

6 Conclusions

The BRoWSER project has the overall aims of:

- Collecting data on worker injuries and near misses by country, road administration and employer
- Understanding the optimum road works layouts that enable road users to approach, travel through and exit works without causing injury to workers and others

This report is the deliverable for Work Package 1. It has sought to outline the principles and benefits of a EuRoWCas database.

The current situation regarding collection and use of road worker safety data across nine countries has been determined through consultation with twelve organisations. A maturity model has been developed, with a number of indicators that represent overall performance. The maturity analysis demonstrated that the nine countries that have been assessed are each at different stages along the maturity model and that there is significant variance in stage by indicator. Some countries are ahead of the majority for some indicators, but behind for others. In every country there is 'room for improvement'.

The main aim of EuRoWCas is to provide a database and analysis system to help Road Authorities take a data-led approach to the development of policy for road worker safety. The database would also allow meaningful comparisons of performance and benchmarking to be undertaken. Road worker injury and near miss data will included in such a database.

It is strongly recommended that in Work Package 2, two sets of data requirements are specified:

- A basic 'standard' dataset (for the short term) – to allow basic analyses and performance comparisons
- An 'enhanced' dataset (for the longer term) – to allow detailed analyses and research

It is proposed that analyses will be undertaken at three levels:

- Individual agency level – Analyses to support policy decisions, monitoring performance and evaluation, comparison of performance of different operating areas/contractors
- European level – Benchmarking using meaningful metrics
- Research/meta-analyses – Identification of safe (and unsafe) practices/layouts/equipment use/policy

The type of system that would be ideally used to facilitate these analyses is described, this being a web-based system with the ability to control access through user name and password combinations, validation capability, analysis functionality and an in-built audit system.

The main benefits of a EuRoWCas database have also been determined through the consultation process. These have been summarised, and broadly fall into the following categories:

- Benchmarking and monitoring performance
    - Benchmarking internally within a country or region, monitoring performance over time and impact of policy changes
    - Benchmarking internally between contracting firms and/or by project, monitoring performance over time and impact of policy changes

    - Cross-European comparison and assessment (similar sized countries), monitoring performance over time and impact of policy changes
- Determining effectiveness of approach/principles:
    - European level: Larger data source for European research on Road Worker Safety
    - European level: Evidence base to inform European standards and policy development – source of data on what is effective and what is not
    - Individual level: Source of data for small nations to use in informing their own policy development
- Case building
    - Case building for investment
    - Quantification of resourcing of road worker safety and comparison between countries

It is clear from the consultation evidence presented that the NRAs (and Regional and Local Road Authorities) and other organisations interviewed agree that there would be significant benefits to implementing EuRoWCas. Indeed, ten out of the ten organisations (whose interview write-ups are currently available) agreed that availability of consistent data on road worker safety across Europe would help them to improve safety for road workers.

In order to present a balanced case, the implementation challenges have also been explored through this deliverable. Each challenge has been identified and a potential mitigation strategy developed. This information will be used to inform future Work Packages of the BRoWSER project should progression of the project be desired.

The next steps for the BRoWSER project are:

- Complete the interview write-ups for the last two organisations
- Complete Work Package 2 – Establishment and definition the input data requirements which involves developing a harmonised data framework for:
    - The collection of data on worker injuries/near misses
    - The collection of information on road work layouts (in support of Work Packages 7, 8 and 9).

7 Acknowledgement

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8 Annex A: Consultation interview write-ups

8.1 Highways Agency, England

You and Your Organisation

Data on Interviewee

Interviewee: Wayne Mullin

Position: National H&S team member

Representing which organisation: HA

Country: England

Years of experience in this field: 5 years

Email address: wayne.mullin@highways.gsi.gov.uk

Can you give some background information about your role and responsibilities?

Part of the aiming for zero team. Used to be an H&S advisor. Now looking after airsweb for accident and incident data.

Data on Interviewee's Employer

Name: HA

Country: England

Responsibilities: National Road Authority

For Road Authorities:

Network length: 4,300 miles

Network Composition (e.g. kms of different types of road if available):

See network map here: http://www.highways.gov.uk/wp-content/uploads/2012/07/Highways_Agency_Network_Map_-_November_2011.gif?9d7bd4

Region under Road Authority's management: England's trunk roads

Annual road works budget and percentage attributable to traffic management:

£1.25m in 2011. See page 78 of this document: http://assets.highways.gov.uk/about-us/corporate-documents-annual-reports/Annual_Report_2011-12_Single_pages_for_Web.pdf

Size of direct labour force (100's): Information requested

Size of contract labour force (100's): Information requested

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety? H&S at work act Road traffic act CDM regs HSE Chapter 8		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a		

mixture)? Aiming for zero strategy. National H&S team recognised the need for a strategy and vision following a spike in numbers of fatalities in 2005.
Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety? £1.9m this year. £2.2m last year. Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in ***bold italics*** refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? *(if "no" please go to section 3.2)*	Yes	
Who records these data? Supplier in charge of scheme requests access to airsweb. Supplier staff with an H&S background fill in airsweb forms.		
What process is followed from reporting/form filling through to whether these are held in a database? This depends on the site and it varies from site to site. A H&S advisor will investigate an accident and fill in the airsweb forms online. The electronic form means that information is standardised. IAN 128 applies. RIDDOR incidents must be notified within 24hrs.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) Comprehensive form. Refer to airsweb manual.		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges The data are only as good as those that are inputting them. There are some drop down options that mean that the person inputting information can select an option that is not terribly informative. E.g. "as described in findings" or "other incidents". This means that these data become less useful or additional resource is required to go back to the reports to determine what should have been recorded.		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?	Yes	
If yes, how is a near miss defined in your country? We have a system for communicating with your suppliers called an Interim Advice Note (IAN) and IAN128/12 - Highways Agency Supply Chain Health and Safety Incident Reporting provides the following definitions: "Near Miss - an event that, whilst not causing harm, has the potential to cause injury or ill health". We used to ask that all near misses (no matter how trivial they may seem) be recorded on our Accident & Incident Reporting System (AIRS), but IAN 128 has recently been updated to state that only high potential near misses need to be recorded (as long as our suppliers have internal methods of recording near misses). This came about from feedback from our supply chain that it was taking too much time to record everything in this category and was a duplication of effort. Our definition of a High Potential Near Miss "an event or set of conditions or circumstances where the outcome on that occasion did not result in a major injury or damage. However with only a slight change in the circumstances had the potential to cause fatal injuries, serious bodily harm or major property damage".		
Are near miss data collected for incidents involving road workers? *(if "no" please go to section 3.3)*	Yes	
Who records these data? Same process as for the accident data. Airsweb forms for near misses. Some sites run an anonymous near miss post box so that issues that are of a concern are raised. High potential near misses must be reported within 5 days (IAN 128)		
What process is followed from reporting/form filling through to whether these are held in a database? Same as for accident data.		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in) Refer to airsweb manual		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges People's understanding of a near miss varies. So the types of reports differ. There was recently a user group meeting and feedback was given that the time taken to fill in the forms was not always commensurate with the incident severity. Therefore there is now advice to only fill in high potential near misses. There is not always enough detail available to drill into the data and identify trends.		

Road user accident data

Recorded in airsweb as a high potential near miss.

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No

Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: *If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data?* Stats 19 form is used.		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? There is a tick box for 'special conditions-road works present' in Stats 19.		
Is it possible to identify road worker casualties directly from the road user accident data?	Yes	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? There is a field that says "pedestrian road maintenance worker". Answers can be yes, no/not applicable, not known. Suspect not known is used a lot.		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as "pedestrian struck on road" for a road where pedestrians are not permitted and road works are present)		
Are there any challenges that you face with accessing or using national road user accident data?		No
If yes, please describe these challenges		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Grid references are recorded.		
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? See Stats 19 form		
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? See Stats 19 form		
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? In the Stats 19 form there is a contributory factor category that is 'road environment contributed' and one of the options that can be selected is 'temporary road layout (e.g. contraflow)'.		

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if "no", please go to section 3.5)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database? N/A		

What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes: Section to be completed.

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	No
Who records this information?		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in)		
What process is followed to collect and record this information? Are there forms/databases?		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?		
Are there any challenges that you face with accessing the information?	Yes	No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) DfT traffic - Annual road traffic estimates are mainly based on around ten thousand manual counts, which are combined with ATC data and road lengths to produce overall estimates Traffic estimates for major roads are based on a census of all such roads whereas traffic estimates for minor roads are estimated by calculating growth rates from a fixed sample of count points on the minor road network. There are also HATRIS data. These traffic flow data are calculated from Midas loops and are most complete for motorways.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) It is possible to get these data, or at least derive them from the HATRIS dataset or the HAPMS dataset.		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No

If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?	Yes	
If so, what are these (please give as much detail as possible) Deriving some of this data requires technical knowledge and the ability to process data from a GIS layer.		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)? N/A		
If yes, Which data sources do you use to manage road worker safety? Airsweb accident and near miss data.		
How are the data currently used (policy, strategy, interventions, monitoring performance)? Monitoring performance against targets. Data are analysed and are presented in a 2 page summary report to the HA board. This includes RIDDORs/month, hours since last RIDDOR, trend on yearly stats (rolling 12 month period). Accident frequency rates which is (no of RIDDORS*100,000)/no of hours worked. Some metrics broken down by area, region and supplier. Quarterly report goes into more detail. RIDDOR, serious accidents. Severity weighted accident frequency rate. Follow up investigations findings/conclusions. Safety alerts. Comparisons between contractors/between sites made and any issues investigated and acted upon. To inform toolbox talks (once a week discussions on H&S issues).		
What analyses are undertaken? See above.		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? Number of RIDDORS Accident frequency rates. Yes there are targets.		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? HA, Police, DfT.		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes (but not 100% sure)	
It would be good to know what does and does not work. Help with case building and evidencing recommendations.		
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason Not sure that it would be helpful.		
Are there any other data that should be included? I think you have the key elements here; it would just be the level of detail in each section. Safety measures / types in operation during incidents e.g. Impact Protection Vehicles / Crash cushions. Environmental conditions at the time e.g. wet, dry, day, night etc. Traffic state at time of incidents traffic heavy, light flowing, speed etc. But I'm guessing all this type of thing will be covered off under each section? I can send over some screen shots of this type of data / fields on AIRS if it helps?		
How would you use such data? N/A		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? The data are only as good as what is recorded by people. Need to educate people on the need to provide high quality data. Data protection/sensitive data issues.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Benchmarking. Demonstrate safety record. Metrics and trend analysis. Learning from others might be a challenge due to the difference in set up, but perhaps principles can be applied.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes (only if a case can be made)	
Do you foresee any challenges with this approach?	Yes	
What might these challenges be? How could they be overcome? A strong case would need to be made to achieve a change.		

Any further comments?

8.2 Transport Scotland

You and Your Organisation

Data on Interviewee

Interviewee:	Joanne Seath
Position:	Road Safety Manager, formerly an Area Manager for Maintenance however just taken a new role.
Representing which organisation:	Transport Scotland
Country:	Scotland
Years of experience in this field:	3 years in road worker safety role
Email address:	joanne.seath@transportscotland.gsi.gov.uk

Can you give some background information about your role and responsibilities?

Joanne was the Area Manager for maintenance responsible for an operating company. She represented Transport Scotland on ROWSAF and chaired the Scottish Temporary Traffic Management Safety Forum. She was responsible for letting the Scottish forum know what was going on in other parts of UK and internationally. She led the adaptation of IANs for Scotland, overseeing their publication for Scotland. Joanne has performed audits on TTM. Joanne now has a new role as Road Safety Manager for Strategic Road Safety Network Operations. Dealing with crash data and determining priorities for action across the network.

Data on Interviewee's Employer

Name:	Transport Scotland
Country:	Scotland
(if different from above)	
Responsibilities:	National Road Authority

For Road Authorities:

Network length: Information requested

Network Composition (e.g. kms of different types of road if available): Information requested

Region under Road Authority's management: Scottish trunk roads

Annual road works budget and percentage attributable to traffic management: Information requested

Size of direct labour force (100's): Information requested

Size of contract labour force (100's): Information requested

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety? H&S at work act Road traffic act CDM regs HSE Chapter 8		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?		No
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a		

mixture)? N/A
Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety? No formal budget allocated specifically to road worker safety. Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in ***bold italics*** refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? *(if "no" please go to section 3.2)*	Yes	
Who records these data? The operating companies record these data themselves. The only formal requirement is that RIDDOR accidents are reported within a particular time frame.		
What process is followed from reporting/form filling through to whether these are held in a database? There is no consistent process other than the information that is required for a RIDDOR. At the last meeting of the Scottish TTM Safety Forum a standardised process was proposed and forms provided however there is no formal requirement for operating companies to use this. Any data that are collected are recording using paper forms. Amey (one of the operating companies) used to enter their accident and near miss data onto airsweb. Quarterly reports are provided by operating companies on their accidents and near misses. Injury accidents are reported on in the operating companies' annual report. All accidents are reported to a monthly progress meeting.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) No database (seeking confirmation). Form requested.		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges No standardised recording format historically. No database for analysis (seeking confirmation)		

Near misses involving road workers

A near miss is “an event that could have caused harm but due to fortunate circumstances did not”. This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?		No
If yes, how is a near miss defined in your country?		
Are near miss data collected for incidents involving road workers? *(if “no” please go to section 3.3)*	Yes	
Who records these data? Operating companies.		
What process is followed from reporting/form filling through to whether these are held in a database? No standardised process, though an optional form has been developed and promoted at the last Scottish TTM Safety Forum. Paper forms in use, no database (seeking confirmation). Near miss data are reported on at the Scottish TTM Safety Forum and in annual operating company reports.		
What fields (and options) are included in the form/database? Please list. **OR** Please append the form used (this may be a blank form that is not filled in) Form developed recently. Form requested.		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges Inconsistency. No database for analysis. Forms need to be tick based and fast to fill in. Any system developed should not require computer access. Need extensive training for people to understand and appreciate what a near miss is. Violence and aggression towards road workers is a worrying trend.		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: *If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data?* Stats 19 form is used.		
Is it possible to identify which road user accidents happened at road works	Yes	

If so, how is this achieved (for example a specific field to record the presence of road works)? There is a tick box for 'special conditions-road works present' in Stats 19.		
Is it possible to identify road worker casualties directly from the road user accident data?	Yes	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? There is a field that says "pedestrian road maintenance worker". Answers can be yes, no/not applicable, not known. Suspect not known is used a lot.		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as "pedestrian struck on road" for a road where pedestrians are not permitted and road works are present)		
Are there any challenges that you face with accessing or using national road user accident data?		No
If yes, please describe these challenges		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Grid references are recorded.		
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? See Stats 19 form		
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? See Stats 19 form		
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? In the Stats 19 form there is a contributory factor category that is 'road environment contributed' and one of the options that can be selected is 'temporary road layout (e.g. contraflow)'.		

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if "no", please go to section 3.5)	Yes	
Who records these data? Operating companies		
What process is followed from reporting/form filling through to whether these are held in a database? These data would form part of the near miss data.		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in) See near miss data.		
Are there any challenges that you face with accessing or using the data?	Yes	

If yes, please describe these challenges See near miss data.

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? This information should be recorded as part of road opening notices, though not sure if type of TTM would be included. Road opening notices and programme of intent might provide this information. Requested further details.		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in)		
What process is followed to collect and record this information? Are there forms/databases?		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?		
Are there any challenges that you face with accessing the information?	Yes	No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) There are loops across the majority of the network (at important nodes). Some provide speed data, some just provide traffic flow data.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) Data on the network composition are available.		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?	Yes	
If so, what are these (please give as much detail as possible) Speed data (from the loops).		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?		No
If so, what are these (please give as much detail as possible)		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)?		
If yes, Which data sources do you use to manage road worker safety? Road worker accident and near miss data are used on an adhoc basis, not for formal analysis and data mining. Proactive analyses are not undertaken.		
How are the data currently used (policy, strategy, interventions, monitoring performance)? To inform policy and strategy. Use data from trials elsewhere to inform policy.		
What analyses are undertaken? None		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? There are no formal targets. Performance is monitored in an informal manner. Number of injury accidents occurring is reported. The Performance Audit Group report on each operating company. Part of this includes H&S performance.		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Operating companies, police, Transport Scotland.		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? No.		

How would you use such data? Monitoring performance. Comparing performance with other countries/benchmarking. Highlight any requirement to improve performance. Pin-pointing the real issues and emerging trends. Understanding what has been done elsewhere and the impact of different policies/equipment.		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? The data collection process needs to be simple and not labour intensive. A portal would be needed so that operating companies can enter their data.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Comparison of performance and understanding whether there is room for improvement.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?	Yes	
What might these challenges be? How could they be overcome? Would need to make data capture and reporting requirements of contracts to make sure that a standard process was adopted.		
Any further comments?		

8.3 Welsh Government

You and Your Organisation

Data on Interviewee

Interviewee:	Martyn Pinches/Angela Smith
Position:	H&S Advisor/Road Safety Engineer (respectively)
Representing which organisation:	Welsh Government
Country:	Wales
Years of experience in this field:	23 years H&S/14 years
Email address:	Martyn.Pinches@Wales.GSI.Gov.UK/ Angela.Smith11@Wales.GSI.Gov.UK

Can you give some background information about your role and responsibilities?

Martyn: H&S management systems. Risk identification. Encouraging staff to 'think safety' and implement safety measures.
Angela: Responsible for road safety procedures. Liaison with Local Authorities. Close liaison with the transport statistics department.

Data on Interviewee's Employer

Name:	Welsh Government
Country:	Wales
Responsibilities:	National Road Authority

For Road Authorities:

Network length: Information requested

Network Composition (e.g. kms of different types of road if available):

2 motorways – M4 in Wales and small section in North Wales. Remainder dual carriageway. WG has responsibility for trunk roads, LAs for non-trunk roads.

Region under Road Authority's management: Welsh trunk roads

Annual road works budget and percentage attributable to traffic management: Information requested

Size of direct labour force (100's): Information requested

Size of contract labour force (100's): Information requested

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety? Same legislation applies as in England Standards and advice (e.g. IANs and DMRB) are considered and adopted, amended or rejected. Checks are made to ensure that the guidance is applicable to Wales.		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?		No
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)? No formal strategy or vision in place at present, however road worker safety has a section in the Welsh road safety plan which is currently in draft form.		
Is it possible to give an indication of the % of the overall road work/maintenance budget that is		

dedicated to deal with the issue of road worker safety? Information requested.	
	Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in ***bold italics*** refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? *(if "no" please go to section 3.2)*	Yes	
Who records these data? Collection of data is done on an informal basis. The supply chain will collect data and will report it to a quarterly monitoring meeting. If an incident is severe then it is flagged up and investigated urgently. The supply chain will call/email details to Martyn.		
What process is followed from reporting/form filling through to whether these are held in a database? No form and no database per se.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) N/A		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges As there is no formal reporting system it is not possible to compare performance with other countries etc. No database available for analysis.		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?		No
If yes, how is a near miss defined in your country? (A near miss definition would be helpful to ensure consistency).		
Are near miss data collected for incidents involving road workers?	Yes	

(if "no" please go to section 3.3)		
Who records these data? Again an informal reporting system from the supply chain. H&S concerns are flagged at a quarterly meeting. Urgent issues are raised through email/telephone.		
What process is followed from reporting/form filling through to whether these are held in a database? N/A		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in) N/A		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges No database per se. Comparisons aren't possible Near misses rarely get captured – too much subjectivity in determining what a near miss is. For some it is something quite minor like a missing sign, for others it is a near wipeout.		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: *If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data?* Stats 19 form is used.		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? There is a tick box for 'special conditions-road works present' in Stats 19.		
Is it possible to identify road worker casualties directly from the road user accident data?	Yes	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? There is a field that says "pedestrian road maintenance worker". Answers can be yes, no/not applicable, not known. Suspect not known is used a lot.		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as "pedestrian struck on road" for a road where pedestrians are not permitted and road works are present)		

Are there any challenges that you face with accessing or using national road user accident data?	Yes	
If yes, please describe these challenges Concerns about data quality for Stats 19. Also on 1st April the Police in South Wales started using Niche computer systems and there was significant under reporting for some time while this was being introduced.		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Grid references are recorded.		
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? See Stats 19 form		
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? See Stats 19 form		
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? In the Stats 19 form there is a contributory factor category that is 'road environment contributed' and one of the options that can be selected is 'temporary road layout (e.g. contraflow)'.		

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if "no", please go to section 3.5)		No
Who records these data? N/A		
What process is followed from reporting/form filling through to whether these are held in a database? N/A		
What fields (and options) are included in the form/database? Please list. **OR** Please append the form used (this may be a blank form that is not filled in) N/A		
Are there any challenges that you face with accessing or using the data? N/A	Yes	No
If yes, please describe these challenges N/A		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?		No
Who records this information? Appears not to be a central database. Information for public on 'traffic wales.co.uk.		

May be part of road works notification process. Further information requested following interview.
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in)
What process is followed to collect and record this information? Are there forms/databases?
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?

Are there any challenges that you face with accessing the information?	Yes	No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) DfT surveys		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) Information requested.		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?		No
If so, what are these (please give as much detail as possible)		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?		No
If no, how is road worker safety managed (experience, good practice)? Via information about individual incidents.		
If yes, Which data sources do you use to manage road worker safety? Information requested		
How are the data currently used (policy, strategy, interventions, monitoring performance)?		

Reports are taken up to the board. Significant incidents are cascaded instantly up the chain. The plan is more high level at the moment. No targets and no mission statement. Tend to follow what others are doing in UK
What analyses are undertaken? None
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? No targets
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Welsh Government, Police, DfT. Supply chain.

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
It would be good to know what does and does not work. Help with case building and evidencing recommendations.		
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?		No
If no, please give reason Not sure that it would be helpful.		
Are there any other data that should be included? How much other countries are spending on road worker safety would be useful to make the case for increased investment.		
How would you use such data? For comparisons and case building.		

Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? There would be challenges if more data were to be collected. There would be expense and it would take some time to get it right.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? It would allow access to more data (issue in Wales is that there aren't many accidents) upon which to base policy decisions. It would allow benchmarking against similar sized countries. Gathering of data is useful to justify policy.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?	Yes	
What might these challenges be? How could they be overcome? It would take some effort to get such data collection methods approved. We will always be asked the question why do we need to do it. What benefit does it bring versus the costs of implementation. The question of whether we 'need' to do it will also be asked.		
Any further comments?		

8.4 Department for Regional Development, Northern Ireland

You and Your Organisation

Data on Interviewee

Interviewee:	Stephen Tweed
Position:	Safety, Health, Environment and Pavement Engineer
Representing which organisation:	DRDNI
Country:	Northern Ireland
Years of experience in this field:	20
Email address:	Stephen.Tweed@drdni.gov.uk

Can you give some background information about your role and responsibilities?

The "Road Service" is a business unit. Work completed is in establishing engineering and H&S policy. Also complete independent audits for other business units.

Data on Interviewee's Employer

Name:	DRDNI
Country:	NI
Responsibilities:	National Road Authority

For Road Authorities:

Network length: 25,700 km of public roads together with some 9,800 km of footways, 5,800 bridges, 276,000 street lights, and 363 public car park

Network Composition (e.g. kms of different types of road if available): Information requested

Region under Road Authority's management: NI

Annual road works budget and percentage attributable to traffic management: Information requested.

Size of direct labour force (100's): 2091 (seeking clarification whether this includes in-house contractors)

Size of contract labour force (100's): This may not be possible to answer as it depends on the projects/schemes being undertaken at any given time.

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety? H&S legislation. Regulations similar to GB ones. H&S at work act Northern Ireland Order 1978.		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	
Roads Service's vision is to have a safe and efficient road network which meets the needs of all. Our mission is to facilitate, in a sustainable way, the safe movement of people, goods and services for the social and economic benefit of all people in Northern Ireland.		
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)? Use H&S management system published by HSE – HSD65. Risk assessments undertaken. Operational H&S controls and checking system. Monthly, quarterly and annual reporting.		
Is it possible to give an indication of the % of the overall road work/maintenance budget that is		

dedicated to deal with the issue of road worker safety? Difficult to answer as separating out works and safety would not really be possible.
Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in ***bold italics*** refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? *(if "no" please go to section 3.2)*	Yes	
Who records these data? Individuals report on accidents to their line managers. Line managers send reports to Stephen and his team.		
What process is followed from reporting/form filling through to whether these are held in a database? There is a standard form that must be filled in by individuals before the end of their shift. This is passed to their line manager. The line manager investigates the accident and countersigns the form and forwards this to Stephen and his team. Stephen enters the report into an Excel database.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) Blank form requested along with headers for excel spreadsheet database.		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges It is a challenge to receive the reports in a timely manner, though only 1% of accidents are not reported within the specified parameters. Further information requested.		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?	Yes	
If yes, how is a near miss defined in your country? The definition is included in the PIA 05 form. Dangerous occurrences are also included in the form.		

Are near miss data collected for incidents involving road workers? *(if "no" please go to section 3.3)*	Yes	
Who records these data? Same as for accident data		
What process is followed from reporting/form filling through to whether these are held in a database? Same as for accident data		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in) Form and database format requested.		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges The greatest challenge is to ensure that the workforce observe and report near misses.		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: *If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data?* NI Collision Report Form used http://www.psni.police.uk/road_collision_report.pdf		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? There is a tick box for 'special conditions-road works present'. Also a contributory factor of "road works in progress".		
Is it possible to identify road worker casualties directly from the road user accident data?	Yes	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? Field that says: "pedestrian injured in the course of on the road work"		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as "pedestrian struck on road" for a road where pedestrians are not permitted and road works are present)		
Are there any challenges that you face with accessing or using national road user accident data?		No
If yes, please describe these challenges		

If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Grid references are recorded.
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? See CRF
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? See CRF
Not known
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? The police record causation factors. One of these relates to road works in progress (no. 81).
Not known

Near misses involving road users at road works

Note these would be classed and recorded as a near miss road worker accident (see previous section)

Are near miss data collected for incidents involving the public at road works? (if "no", please go to section 3.5)	Yes	No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes: Information requested.

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	No
Who records this information?		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in)		
What process is followed to collect and record this information? Are there forms/databases?		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)		

Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?		
Are there any challenges that you face with accessing the information?	Yes	No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data: Information requested

Are traffic flow data available across the network?	Yes	No
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.)		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	No
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.)		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?	Yes	No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?	Yes	No
If so, what are these (please give as much detail as possible)		
Are speed data currently collected at road work sites?	Yes	No
Please describe		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)?		
If yes, Which data sources do you use to manage road worker safety? Accident and near miss reports.		
How are the data currently used (policy, strategy, interventions, monitoring performance)? The data are used to undertake all of the above. Data are used to back up potential policy developments/decisions, these are then taken to the board for approval. In addition, the Roads Service tends to track HA policy.		
What analyses are undertaken? Information requested.		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? There are targets (covered in the report) for RIDDORs, accidents and near misses. These are continually monitored and reported on in the annual analysis report.		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? H&S Standing Committee Traffic Management Representatives Traffic Information Control Centre		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? No		
How would you use such data? Mainly for benchmarking. It would be useful to know how NI Roads Service is performing against others in the UK and Europe.		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? There may be challenges with managing information and the degree to which this becomes burdensome for users.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Benchmarking would be very helpful. However there are risks. If NI is doing better than others, then complacency could set in. On the other hand if NI is not doing well then it may mean greater attention is given to road worker safety and increased investment may be sought. If the benchmarking results suggest that NI is performing well, then this may act as corporate assurance.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?		No

What might these challenges be? How could they be overcome? No real challenge. It would be possible to recommend changes.
Any further comments? Interest in how the project intends to deal with the following issues: Stress Health issues (not safety) Dynamic Risk Assessment (interested in the use of these generally) Road user behaviour Use of speed data. Currently not really collected for road work sites as a rule.

8.5 Land Nordrhein-Westfalen, Germany

You and Your Organisation

Data on Interviewee

Interviewee:	Michael Höhne
Position:	Manager HSE
Representing which organisation:	Strassen.NRW
Country:	Germany
Years of experience in this field:	20
Email address:	michael.hoehne@strassen.nrw.de

Can you give some background information about your role and responsibilities?

Advisory Staff Strassen.NRW, investigation of incidents and accidents, HSE Strategy

Data on Interviewee's Employer

Name:	Strassen.NRW
Country:	Germany
Responsibilities:	Regional or Local Road Authority

For Road Authorities:

Network length: Information not provided

Network Composition (e.g. kms of different types of road if available):

2,207 km motorway

4,767 km federal highway

12,837 km state road

Region under Road Authority's management: North Rhine-Westphalia

Annual road works budget and percentage attributable to traffic management:

Information not provided

Size of direct labour force (100's): Information not provided

Size of contract labour force (100's): Information not provided

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety? Arbeitsschutzgesetz (German Occupational Safety and Health Act), Unfallverhütungsvorschriften (accident prevention regulations)		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)? A lot of accidents with own employees while working on the street. Mean value 1/ year with deadly implications.		
Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety?		

	Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in bold italics refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? (if "no" please go to section 3.2)	Yes	
Who records these data? Only the data from own employees. (KIT-ISE: Accident data base not available for contractors employees specific on road works. Statistic available only for construction sites in general)		
What process is followed from reporting/form filling through to whether these are held in a database? Accident reports to the employer's liability insurance association.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) Not provided.		
Are there any challenges that you face with accessing or using the data?		No
If yes, please describe these challenges		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?		No
If yes, how is a near miss defined in your country?		
Are near miss data collected for incidents involving road workers? (if "no" please go to section 3.3)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR		

Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?		No
If yes, please describe these challenges		

Road user accident data (Filled in by KIT-ISE)

Do you have access to national road user accident data (such as that collected by the police?)	Yes (1 database per region)	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data? Available at Ministry of Transport		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? In the crash recording forms is a specific field for work zones. The experience shows, that his field is filled very different by the police, for example it is also possible, that the accident occurs in the congestion behind the work zone.		
Is it possible to identify road worker casualties directly from the road user accident data?		No
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)?		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present) Not for sure! (In some regions also the descriptions of the accident circumstances are available in digital form. So in the text fields you can look for both “work zone” and “road worker”.)		
Are there any challenges that you face with accessing or using national road user accident data?	Yes	No
If yes, please describe these challenges		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Minimum information: Road Number, kilometre post, sometimes GPS-coordinates		Not known
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? The road information must be completed by other databases.		

	Not known
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? All databases in Germany are including: day, time, weather, road surface condition; type of conflict, severity, number of casualties, Information about leaving the carriageway, impact on barriers…	
	Not known
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? The causation is recorded by police with the situation they found at the accident. In general it is not related to road works, for example “inattention”, “insufficient safety distance”	
	Not known

Near misses involving road users at road works (Filled in by KIT-ISE)

Are near miss data collected for incidents involving the public at road works? (if “no”, please go to section 3.5)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes (Filled in by KIT-ISE)

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? Division for road maintenance		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in) In most cases the PLANNED location, type, dates / times, speed limit and duration of road works is collected in data bases. In most states the REAL duration etc. is not reported.		
What process is followed to collect and record this information? Are there forms/databases?		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?		
Are there any challenges that you face with accessing the information?	Yes	No

If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)

Other data (Filled in by KIT-ISE)

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) Collected by Ministry of Transport Level of detail is very different in German states		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) Low level of detail, seldom updated		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?		No
If so, what are these (please give as much detail as possible)		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)?		
If yes, Which data sources do you use to manage road worker safety? Statistics of accidents		
How are the data currently used (policy, strategy, interventions, monitoring performance)? For strategy		
What analyses are undertaken? Which Car or Lorry types causes the accidents? Where do the accidents happen?		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? None		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Employer's liability insurance association		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?		No
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? No		
How would you use such data?		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be?		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? After comparison look for the best way to do safer work on the roads.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	No answer given	
Do you foresee any challenges with this approach?	No answer given	
What might these challenges be? How could they be overcome? No answer given		
Any further comments? No answer given		

8.6 Hessen, Germany

Awaiting write up.

8.7 Flemish Road Authority, Belgium

You and Your Organisation

Data on Interviewee

Interviewee: Mrs. Kristien DE POORTER (1), Mr Bart JANSSENS (2) & Mr. Dries KEUNEN (2)

Position: (1): Coordinator Preventive Safety

(2): Engineers

Representing which organisation: Flemish Road Authority

(1): Planning en Coordination

(2): Expertise Traffic & Telematics

Country: Belgium

Years of experience in this field:

Email address: kristien.depoorter@mow.vlaanderen.be bart.janssens@mow.vlaanderen.be; dries.keunen@mow.vlaanderen.be

Can you give some background information about your role and responsibilities?

No information provided.

Data on Interviewee's Employer

Name: FRA

Country: Belgium

Responsibilities: Regional Road Authority

For Road Authorities:

Network length: 6.939 km

Network Composition (e.g. kms of different types of road if available):

Motorways (incl. exits and access): 1.204,5 km

Other regional roads: 5.380,5 km

Ring road: 246 km

Ring road with Motorway status: 108 km

Region under Road Authority's management:

Annual road works budget and percentage attributable to traffic management: Information requested

Size of direct labour force (100's): Information requested

Size of contract labour force (100's): Information requested

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety?

National legislation on well-being of workers:

The Act of 4 August 1996 on well-being of workers in the performance of their work and its implementing decisions apply to every employer who employs workers in Belgium. This Act transposes into Belgian law the framework Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (www.employment.belgium.be).

Royal decree of 25 January 2001 on Temporary and mobile work sites

This decree describes the role of the actors concerned by the safety of work sites (owner, client, contractor, safety coordinator).

Belgian (federal) decree of May 7th, 1999 concerning the signing of road work activities and other obstructions on public roads:

The regulation mentions the measures that should be applied for each category of road works and, within each category, for each zone. The federal regulation is complemented by regional guidelines which give additional details concerning the measures to apply with respect the existing federal categorization.

Regional guidelines provide detailed information on how road work activities should be signalized for different site characteristics (median separation, number of lanes, etc.). The regional guidelines sometimes give additional requirements to the decree of May 7th, 1999; for Flanders they are based on the following documents:

Standard tender specifications: Standaardbestek 250 (Chapter X. 3 on road works signing) is used as a reference document when preparing the tender specifications.

Schemes for signing of the more typical road works layouts (appendix to Standaardbestek 250)

Regional rules (“dienstorders”) complementing the standard tender specifications

Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	

How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)?

Informed by a mixture of data (where available), experience and expert opinion.

The Flemish Road Authority cooperates with some other NRAs (i.e. Highway Agency, Rijkswaterstaat, Nordrhein-Westfalen) within a knowledge programme known as the PIM (Partner Programme for Infrastructure Management) project. Its aim is to combine the lessons learned in infrastructure management and implement them as improvements in the line organisation. Specialists from the participating organisations study specific issues and disseminate the experience they gain. One topic of this programme is dealing with road worker safety.

The Flemish Road Authority (Expertise Traffic & Telematics) is also trying to collect data on accidents happening with the TMAs used for the Belgian category 6 RW (mobile road works hindering the traffic due to their low speed of frequent stops). The objective is to be able to optimize the signaling for working. The registration form is provided in appendix.

Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety?

Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in bold italics refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? (if "no" please go to section 3.2)		No
Who records these data? Following the Royal decree of 25 January 2001 on Temporary and mobile work sites the safety coordinator must report about accidents happening on the work site.		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?	Yes	
If yes, how is a near miss defined in your country? Definitions commonly used: Incidents: a collective term for unintended events that may or may not cause damage. This can be human injury, equipment or material damage, damage to the environment or functional disruption. Accident: A sudden, unwanted and unintentional external event occurs and leads to physical injury. Unplanned and uncontrolled event in which the action or reaction of an object, person or radiation results in personal injury; Work accident: an accident happening to an employee during the work or due to the execution of the labour contract and causing injury. Thus, a work accident should consist of the following five elements: Accident supposes: a sudden event; at least one external cause; Existence of an injury (which does not necessarily involve disability or death, but at least medical expenses). Exception: accident involving only damage to prostheses or orthopaedic devices is also considered as accident Causal link between the accident and injuries; accident must have occurred during the execution of the contract; accident must have occurred by the fact of the execution of the contract Serious work accident: a work accident is regarded as a serious work accident in the following circumstances: An accident that gave to death, OR An accident in which the event is directly related to: - Either an abnormal event (accidents with electricity, falls from heights, fire, ...)		

- Either an object (shelving, machinery, safety equipment,.). AND has given rise to a permanent injury.		
Are near miss data collected for incidents involving road workers? (if “no” please go to section 3.3)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? The national crash recording form as used by the police is provided in appendix. + collect of data on accidents happening with the TMAs used for the Belgian category 6 RW (mobile road works hindering the traffic due to their low speed of frequent stops); as mentioned in chapter 2 (registration form provided in appendix).		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? The following fields of the crash recording form relate to road works (refer to the appendix): Box 8 B) “Users and Obstacles involved”: code 54 if the obstacle is a container; code 55 if the obstacle is composed of road work signing or related equipment; Box 13 “Other local characteristics”: a topic “Road work having an impact on the carriageway” can be ticked, if relevant; Box 18 “Accident factors”; part “Road/Traffic conditions”: a topic “Road work” can be ticked, if relevant.		
Is it possible to identify road worker casualties directly from the road user accident data?		No
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)?		

If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present) It can’t be identified directly and indirect identification is not always reliable. Indeed combining of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present is possible, but the pedestrian could also be a driver having left his vehicle for emergency reason.		
Are there any challenges that you face with accessing or using national road user accident data?	Yes	
If yes, please describe these challenges Delay to get access to the statistics data recorded by the police (on the basis of the crash recording form mentioned above); Often problems regarding the location of the accident (km post or address; carriageway) → an additional filtering is essential		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? Road number, km post and carriageway on motorways Address on other regional roads		
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? Junction presence, junction type, bends. Following the crash recording form: Box 4 “Intersection or not” Box 7 “Traffic regulation on the intersection”: possible values: “policeman”; ”traffic lights in working”; “defect or not working traffic lights”; “priority road signs”; “right hand side priority”; Box 13 “Other local characteristics”: a topic “roundabout” can be ticked, if relevant; Box 18 “Accident factors”; part “Road/Traffic conditions”: topics “Heavy longitudinal slope” or “sharp bend” can be ticked, if relevant.		

What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? Day, time, weather. Following the crash recording form: Box 3 “Time”: date; hour; Box 9 “Atmospheric conditions”; Box 10 “Lighting conditions”; Box 11 “Road surface conditions”; But also: Box 8 A) “Type of collision”; Box 12 “In/Out urban area”; Box 16 “Movement or intention of the road user” Box 17 “Dynamics” Box 18 “Accident factors” Box 19 “Pedestrian involvement, if any” A first part relates to “Pedestrian position”: an item “the pedestrian is still on the carriageway, is working, is playing” can be ticked, if relevant; A second part relates to “Pedestrian crossing the carriageway”. Box 20 “Cyclist involvement, if any”
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? The policeman is asked (box 21) what he thinks the accident characteristics could be (a short tick list is provided”.

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if “no”, please go to section 3.5)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? The road manager in charge of the following of the road works fills in a dedicated database (named		

"werf"). These data are shared with the regional Traffic centre.
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in) Location, type, dates / times + Data about the signing plan.
What process is followed to collect and record this information? Are there forms/databases? Dedicated database
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?) Accurate for road works carried out on motorways because the data are followed up by the regional Traffic centre.
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded? Checks are undertaken systematically for stationary road works carried out on motorways: Control of the legality, coherence of signing on and upstream the work zone; Control of technical standards and conformity of signing. An example of a standard report form is provided in appendix.

Are there any challenges that you face with accessing the information?		No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) Traffic intensity, speed, vehicle types (permanent counting through electromagnetic loops) on motorways. Traffic intensity (permanent counting through electromagnetic loops) on the other regional roads. Speed, vehicle types data are also available for some sites where temporary counting (through pneumatic tubes) has been carried out.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) The Road Agency makes use of a Road Database that include (on a 100m length section basis) information about the road structure, the road transversal elements and data about structural and surface road conditions. Fields of the DB related to the road equipment's are currently updated. A road signs database is also available. (http://www.mobielvlaanderen.be/verkeersbordendatabank).		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No

If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?	Yes	
If so, what are these (please give as much detail as possible) A low update frequency of the data could give reliability problems.		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes &	No
If no, how is road worker safety managed (experience, good practice)? Mainly through experience, consultation with practitioners and even pilot projects.		
If yes, Which data sources do you use to manage road worker safety? When available (e.g. data about serious work accidents), data are used to produce new or update existing regional rules ("dienstorders").		
How are the data currently used (policy, strategy, interventions, monitoring performance)? For strategic and operational objectives.		
What analyses are undertaken?		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored?		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? The road contractors.		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	

If no, please give reason		
Are there any other data that should be included? Traffic speed data upstream, in and downstream the work zone; Other driving behaviours (i.e. dangerous lane changes)		
How would you use such data? Improve the work scheme Improve operational practices for a better road users and road workers safety		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? Data collection would be an additional administrative task for the one in charge. The collection of RW accident data through the road contractors should be organised on a voluntary basis (raise awareness, win-win situation). Cooperation with the professional association could be discussed. The work site safety coordinator could be involved.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Benchmarking on good practices Harmonisation of road work practices Awareness raising of road contractors / road workers		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?	Yes	
What might these challenges be? How could they be overcome? In the current situation, the Police is responsible for the main accident data collection. These data mainly refers to road users accidents. Any data collection would be an additional administrative task for the one in charge.		
Any further comments?		

8.8 Belgian Federation of Road Contractors

You and Your Organisation

Data on Interviewee

Interviewee:	Mr Didier BLOCK (1), Mr John KREPS (2) + Personal information search (X. Cocu) about Legislation on accidents at work and on the well-being of workers
Position:	See box below
Representing which organisation:	(1) Belgian Federation of road Contractors; (2) Association of the horizontal and vertical signalling and roadside equipment companies
Country:	Belgium
Years of experience in this field::	> 10 years

Email address: (1) didier.block@confederationconstruction.be ; (2) Info@signeq.be

Can you give some background information about your role and responsibilities?

Mr Didier BLOCK is the Secretary general of the Walloon branch of the Belgian Federation of road Contractors.

Mr John KREPS leads the Association of the horizontal and vertical signalling and roadside equipment companies.

Data on Interviewee's Employer

Name: Belgian Federation of Road Contractors

Country: Belgium

Responsibilities:

Other (please specify): Association of professionals

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety?

Act of 10 April 1971 on accident at work :

Art. 7. - For the purposes of this Act, is considered as work accident, an accident occurring to an employee during and by the fact of the execution of the contract of employment and that produces an injury.

Art. 8. § 1. - Is also considered as work accident the accident on the way to work.

From Art. 56 & 57. : The Fund for work accidents (Fonds des accidents du travail) is a public agency responsible for creating a central database on accidents reported and their resolution.

From Art. 62.: The employer shall declare to the insurance company and, in some cases, to the competent inspector for safety, any accident that may result in the application of this Act. The insurance company sends the elements included in the declaration to the Fund for work accidents

Legislation on the well-being of workers (from http://www.employment.belgium.be/defaultTab.aspx?id=556)

The Act of 4 August 1996 on well-being of workers in the performance of their work and its implementing decisions apply to every employer who employs workers in Belgium. This Act transposes into Belgian law the framework Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

Act of 4 August 1996 on well-being of workers in the performance of their work

Royal Decree of 27 March 1998 on the policy of well-being of workers at work

Royal Decree of 28 May 2003 on the health surveillance of workers

Royal Decree of 17 May 2007 concerning the prevention of psychosocial load caused by work, including violence, harassment and sexual harassment at work

Royal Decree of 27 March 1998 concerning Internal Services for prevention and protection at work

Royal Decree of 27 March 1998 on the external services for prevention and protection at work

Royal Decree of 29 April 1999 on the authorisation of external services for technical inspections at the workplace

Royal Decree of 3 May 1999 on the assignments and operation of the Committees for prevention and protection at work

Some key elements:

From the Act of 4 August 1996 on well-being of workers

Art. 5. - § 1. Employers shall take the necessary measures to promote the well-being of the workers at work. For this purpose, the employer shall apply the following general principles of prevention: a) to avoid risks; b) to evaluate the risks which cannot be avoided; c) to combat the risks at source; …

Art. 33. - § 1. Every employer is obliged to establish an Internal Service for Prevention and Protection at work. For this purpose, every employer has at least one prevention counsellor.

Art. 40. - § 1. External Services for Prevention and Protection at work are established. These services have one or more prevention counsellors.

Individual sections that are responsible for the workers' medical supervision are established in the external services for Prevention and Protection at work.

Art. 94bis. – Definitions

1° serious occupational accident: an accident that happens at the workplace itself and which, due to its seriousness, requires a thorough specific investigation with a view to taking preventive measures to avoid its recurrence.

2° expert: an expert regarding the investigation into serious occupational accidents, and who is included in a list compiled by the administration, of which the supervisory officials referred to in Article 80, who have the work safety under their competence, are a part.

Art. 94ter. – § 1. After every serious occupational accident, the employer of the victim sees to it that the accident is immediately investigated by his/her competent prevention service and s/he submits a circumstantial report to the officials referred to in the previous Article within ten days following the accident.

Art. 94quater. – The expert has the following assignments:

1° to investigate the cause and circumstances of the serious occupational accident and to formulate appropriate advice to prevent recurrence of the accident;

2° to include the elements of the investigation, established causes and formulated advice in a written report;

Art. 94nonies. – The employer of the victim must immediately report every serious occupational accident that meets the criteria determined by…

From RD of 27 March 1998 on well-being policy

Art. 3. – Every employer is responsible for the structural systematic approach to prevention in accordance with Article xxx of the Act, by means of a dynamic risk management system

Art. 4. - The dynamic risk management system relies on the general prevention principles referred to in Article xxx of the Act and concerns the following fields:

1° work safety;

2° health protection of the worker at work; ….

Art. 5. – The purpose of the dynamic risk management system is to make the prevention schedule and the policy implementation regarding the well-being of the workers at work possible.

Art. 7. - In his/her dynamic risk management system, the employer develops a strategy regarding the performance of a risk analysis, which serves as a basis to establish preventive measures.

Art. 13. – The members of the hierarchical line, within their scope of authority and at their level, implement the employer's policy regarding the well-being of workers at work.

For this purpose, they have the following specific tasks:

2° to investigate accidents and incidents that occurred at the workplace and to propose measures to prevent similar accidents and incidents;

3° to exercise effective supervision of work equipment, collective and personal protective equipment, substances and preparations used for the purpose of determining irregularities and to take measures to put a stop to this;

Art. 26. § 2. In application of the legal provisions, the person or persons who have the obligations referred to in Article xxx of the Act inform the Service for Prevention and Protection at Work, of whom they have ensured the cooperation to investigate occupational accidents at the workplace incurring four or more days' occupational disability, of the serious occupational accident and they ensure that this service investigates the accident immediately, establishes its causes, proposes preventive measures to avoid its repetition and provides them with a report on this issue.

Art. 28. – The employer ensures that the Service for Prevention and Protection at Work which is charged with this assignment draws up an occupational accident index card for every accident that has caused at least four days of occupational disability.

…the notice form for the occupational accident may replace the occupational accident index card, on condition that the data required to draw up the index card are filled in on the notice form.

Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	

How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)?

Road contractor companies have a prevention strategy (legal obligation; see above). However, for road works they are supposed to follow rules and guidelines as adopted by the NRAs.

Therefore they try to contribute/interfere, with their experience (expert opinion), on the process development of these rules and guidelines.

Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety?

	Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in bold italics refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? (if "no" please go to section 3.2)	Yes	

Who records these data?

When an accident occurs in a company, various measures must be taken (see information about legislative texts above). The Service for Prevention and Protection at work (internal or external, as appropriate) must establish an occupational accident index card for every accident that has caused at least four days of occupational disability.

The notice form for the occupational accident (see in appendix) may replace the occupational accident index card, on condition that the data required drawing up the index card are filled in on the notice form. These sheets or forms must be kept for at least 10 years at the disposal of officials responsible for monitoring the well-being at work. This accident index card must be sent to Medical Surveillance department of the external service for prevention and protection at work. Any accident involving four days of incapacity must also be examined by the Service for Prevention and Protection at work of the employer.

Occupational accidents with fatal or most accidents causing permanent injuries must be reported immediately to the appropriate regional office of the control well-being at work. This declaration must be made by the employer or by the person designated in the contract.

If a serious accident occurs (with fatal outcome, almost always when there is a permanent disability or some temporary injury), the Service for Prevention and Protection at work of the employer shall, in addition to the above, establish immediately a full report, which contains among other victims and employer identification, a detailed description of where the accident occurred and the circumstances of it, the causes identified and recommendations of service appropriate prevention and protection to prevent such accidents in the future.

What process is followed from reporting/form filling through to whether these are held in a database?

No idea

Global statistics to be found on: http://www.faofat.fgov.be/site_fr/stats_etudes/stats_etudes.html

i.e. for Road construction works on: http://www.faofat.fgov.be/site_fr/stats_etudes/fiches_secteur_activite/nace4/documents/4211-2008-Fr.pdf

The codification (code NACE) used is not necessarily enough accurate.

What fields (and options) are included in the form/database? Please list these.

OR

Please append any forms used (this may be a blank form that is not filled in)

Occupational accident index card

This index card include the following items (described in appendix IV of the Royal Decree of 27 March 1998 on Internal Service for Prevention and Protection at work):

Information on the card

Employer Information

Information about the injured person

Information about the accident: location; date, day, hour; Names and addresses of witnesses; description of the accident; action of the victim at the time of the accident; nature

of the accident (accident at work or accident on the way to work); classification of the accident (type of accident, agent); preventive measures taken to prevent the recurrence of a similar accident Information on injuries: consequences of the accident (temporary incapacity, permanent incapacity); Classification of injuries. Notice form for the occupational accident to be used to declare a work accident (in appendix; from the Federal Public Service (FPS) Health, Food Chain Safety and Environment website).

Are there any challenges that you face with accessing or using the data?	Yes	

If yes, please describe these challenges Data relevancy (due to level of detail; i.e. accident during work at road work or accident linked to traffic) Availability delay Privacy issue

Near misses involving road workers

A near miss is “an event that could have caused harm but due to fortunate circumstances did not”. This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?		No

If yes, how is a near miss defined in your country? Following the interviewees, 3 circumstances need to be considered: Road accident happening when road workers are on site but were not harmed, due to fortunate circumstances or appropriate protective equipment; Road accident happening when road workers are away (time dependant) Road accident happening when road workers are present but not close to the accident (space dependant)

Are near miss data collected for incidents involving road workers? (if “no” please go to section 3.3)		No

Who records these data? The road contractor is supposed to declare any equipment damages to his insurance company. The road contractor is also supposed to check road signing daily and draft a visit report.
What process is followed from reporting/form filling through to whether these are held in a database?
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)

Are there any challenges that you face with accessing or using the data?	Yes	No

If yes, please describe these challenges

Road user accident data (section not relevant to consultee)

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if “no”, please go to section 3.5)		No

Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? Road authorities		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in)		
What process is followed to collect and record this information? Are there forms/databases?		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?		
Are there any challenges that you face with accessing the information?	Yes	No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data (section not relevant to consultee)

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)? The safety prevention advisor is supposed to		
If yes, Which data sources do you use to manage road worker safety?		
How are the data currently used (policy, strategy, interventions, monitoring performance)?		
What analyses are undertaken?		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored?		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country?		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? Driving speed statistics		
How would you use such data? Understand accident circumstances to improve operational practices and procedures		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? Data collection on near misses is very difficult; although quite important given the likely low value of the ratio Accidents/Near misses. Administrative load if an additional collecting task is requested from road contractors ; if so seek an ergonomic solution.		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	No
What would this ability allow you to do and why would this be useful?		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	No
Do you foresee any challenges with this approach?	Yes	No
What might these challenges be? How could they be overcome?		
Any further comments?		

8.9 Walloon Road Directorate, Belgium

You and Your Organisation

Data on Interviewee

Interviewee:	Mr. Didier ANTOINE & Mr. Lionel VOOS
Position:	Engineers
Representing which organisation:	Walloon Road Authority – Road Safety Directorate
Country:	Belgium
Years of experience in this field::	> 15 years
Email address:	didier.antoine@spw.wallonie.be; lionel.voos@spw.wallonie.be

Can you give some background information about your role and responsibilities?

Mr ANTOINE & Mr VOOS are two key persons working for the Road Safety Directorate; this Directorate provides support to the Operational Directorate by (list not exhaustive):

Drafting procedures and guidelines on safe road design, safe road operations and safety management (including the issue of road work safety);

Providing assistance to the operational road directorates

Executing safety audits and safety inspections (including inspections dedicated to road works)

Establishing, after an internal quality control of the data, risk maps on the basis of accident statistics data collected by the Police

Data on Interviewee's Employer

Name:	Walloon Road Authority – Road Safety Directorate
Country:	Belgium
Responsibilities:	Regional Road Authority

For Road Authorities:

Network length:	around 7.700 km
Network Composition:	874 km Motorways; 6.850 km regional roads

Region under Road Authority's management: Walloon region

Annual road works budget and percentage attributable to traffic management: Information requested.

Size of direct labour force (100's): Information requested.

Size of contract labour force (100's): Information requested. Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety?

National legislation on well-being of workers:

The Act of 4 August 1996 on well-being of workers in the performance of their work and its implementing decisions apply to every employer who employs workers in Belgium. This Act transposes into Belgian law the framework Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (www.employment.belgium.be).

Belgian (federal) decree of May 7th, 1999 concerning the signing of road work activities and other obstructions on public roads:

The regulation mentions the measures that should be applied for each category of road works and, within each category, for each zone. The federal regulation is complemented by regional guidelines

which give additional details concerning the measures to apply with respect the existing federal categorization. Regional guidelines provide detailed information on how road work activities should be signalized for different site characteristics (median separation, number of lanes, etc.). The regional guidelines sometimes give additional requirements to the decree of May 7th, 1999; for Wallonia they are based on the following documents: Walloon standard tender specifications: Qualiroutes (Chap L.1) is used as a reference document when preparing the tender specifications. Schemes for signing of the more typical road works layouts (appendix to Qualiroutes)		
Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)? Mainly informed by experience and expert opinion. Working groups with workers representatives and safety experts (both intern and extern) discuss on improvement of the operational practices (and further on amendment of existing guidelines or reference documents). Feedback from the police and other experts are used in this framework.		
Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety? Too vast question. Difficult to give a % as the design of the road work site itself (as decided during the planning of the RW) impact on the ratio.		
		Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in bold italics refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? (if “no” please go to section 3.2)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database? Up to know the accident reporting forms (as used to feed the road accident statistics) do not allow to easily distinguishing if a User or a Worker is concerned by the accident. It is also difficult to distinguish accidents happening on road work sites than worker accident happening between home and work site (as both types are covered by the Work		

accident definition.		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Near misses involving road workers

A near miss is “an event that could have caused harm but due to fortunate circumstances did not”. This may include road user accidents at road works where the road worker was not harmed.

Xavier: Incoherency between the draft definition proposed and the second sentence! The definition of “accident” and “near misses” should be discussed again within the consortium (based on the answers we got from the interview process).

Is there a definition for a near miss available in your country?		No
If yes, how is a near miss defined in your country?		
Are near miss data collected for incidents involving road workers? (if “no” please go to section 3.3)		No
Who records these data? The only possible situation corresponding to a near miss is an accident involving a road user along a work site but without any impact on the road workers. Unfortunately the existing collecting systems do not allow reliably tracking such situations.		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? The national crash recording form as used by the police has been provided and assessed.		
Is it possible to identify which road user accidents happened at road works	Yes	

If so, how is this achieved (for example a specific field to record the presence of road works)?

The following fields of the crash recording form relate to road works (refer to the appendix):

Box 8 B) “Users and Obstacles involved”: code 54 if the obstacle is a container; code 55 if the obstacle is composed of road work signing or related equipment;

Box 13 “Other local characteristics”: a topic “Road work having an impact on the carriageway” can be ticked, if relevant;

Box 18 “Accident factors”; part “Road/Traffic conditions”: a topic “Road work” can be ticked, if relevant.

Is it possible to identify road worker casualties directly from the road user accident data?		No

If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)?

If no, can road worker casualties be identified indirectly from other road user accident data?

(for example using a combination of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present)

It can’t be identified directly and indirect identification is not always reliable.

Indeed combining of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present is possible, but the pedestrian could also be a driver having left his vehicle for emergency reason.

Are there any challenges that you face with accessing or using national road user accident data?	Yes	

If yes, please describe these challenges

Around 1 year delay to get access to the statistics data recorded by the police (on the basis of the crash recording form mentioned above;

Level of detail provided by these data do not allow any in-depth analysis (statistical objective only);

Location of the accident is sometimes unclear.

Confidentiality/Protection of privacy rules sometimes hamper access to some data (i.e. no access to detailed crash reports drafted by the police when accidents happen).

If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible

How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)?

Road number and km post on motorways. Address on other regional roads

What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)?

Junction presence, junction type, bends. Following the crash recording form:

Box 4 “Intersection or not”

Box 7 “Traffic regulation on the intersection”: possible values: “policeman”; ”traffic lights in working”; “defect or not working traffic lights”; “priority road signs”; “right hand side priority”;

Box 13 “Other local characteristics”: a topic “roundabout” can be ticked, if relevant;

Box 18 “Accident factors”; part “Road/Traffic conditions”: topics “Heavy longitudinal slope” or “sharp bend” can be ticked, if relevant.

What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? Day, time, weather. Following the crash recording form: Box 3 “Time”: date; hour; Box 9 “Atmospheric conditions”; Box 10 “Lighting conditions”; Box 11 “Road surface conditions”; But also: Box 8 A) “Type of collision”; Box 12 “In/Out urban area”; Box 16 “Movement or intention of the road user” Box 17 “Dynamics” Box 18 “Accident factors” Box 19 “Pedestrian involvement, if any” A first part relates to “Pedestrian position”: an item “the pedestrian is still on the carriageway, is working, is playing” can be ticked, if relevant; A second part relates to “Pedestrian crossing the carriageway”. Box 20 “Cyclist involvement, if any
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? Not exhaustively and not objectively. The policeman is asked (box 21) what he thinks the accident characteristics could be (a short tick list is provided.

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if “no”, please go to section 3.5)		No
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information?		

The road manager in charge of the following of the road works fills in a dedicated database. These data are shared with the regional Traffic centre that delivers information to road users on the impact on traffic conditions; i.e. through its website (extract hereafter).

The amount of information available seems to depend on the road category (more detailed on primary roads) and with the road work category (more accurate for major road works than for mobile/short term road works).

What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.)

Is there is a form/database? If yes, please list all fields and options

OR

Please append the form used (this may be a blank form that is not filled in)

Basically location, type and layout, dates/times, duration of road works, speed limits, signage and equipment used are recorded. For larger and longer road work a detailed layout/signage plan is usually annexed; where for smaller or standard road works reference is made to the relevant standard signing scheme.

An example of the form (as delivered once the road work is authorised to be carried out; and here for a mobile road work) is provided in appendix.

What process is followed to collect and record this information? Are there forms/databases?

Web-based tool feeding a database.

What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?)

No idea

Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded?

Punctual (sampling) checks are undertaken on site. This happens more systematically since 1,5 year, as a result of the transposition of the EU Directive 1998/96 on Road Infrastructure Safety management.

These checks focus mainly on safety related issues (legibility of the road work from the road user perspective). Inspectors also check if the rules on road work signing are rightly applied.

Up to now, the results of these checks are not recorded in a database (only a report form).

Are there any challenges that you face with accessing the information?		No

If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated

data available only etc.) The entire process depends on the Walloon Road Authority. The only challenge is therefore linked to the necessary timely and exhaustive data recording by the local road manager.

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) Hourly traffic data (permanent counting through electromagnetic loops) on primary roads. Hourly traffic data (temporary counting through pneumatic tubes) on secondary roads. These data are used for statistic purpose.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.)		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?		No
If so, what are these (please give as much detail as possible)		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?		No
If no, how is road worker safety managed (experience, good practice)? Available data are used to manage road safety globally (not specific to road worker safety). Road worker safety is mainly managed through experts and field actors' feedback.		
If yes, Which data sources do you use to manage road worker safety?		
How are the data currently used (policy, strategy, interventions, monitoring performance)?		
What analyses are undertaken?		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored?		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Justice representatives / Jurists from the competent Federal ministries (as far as data recording and data availability policies could be amended) Police (as the main actor being in charge of the on-site data recording).		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? Speed data Type of road work (major/minor/mobile)		
How would you use such data? In-depth analysis of practices to assess risks linked to road work types and operational practices. Calculation of the risk exposition by road work types.		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? Slowness of evolution processes to adapt the data recording systems		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Compare results to be able to objectively confirm or invalidate operational practices on the basis of their associated risk. Highlight new challenges appropriately. Focus the experts' and working groups' works on measures have a high potential.		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?	Yes	

What might these challenges be? How could they be overcome? A more detailed data recording by the police could be a challenge. Drafting and using a homogeneous data recording framework is another big challenge. As results need to be comparable, the following items are very important (not exhaustive): Clear and common definitions (e.g. accident, near miss, severe/light injury, etc.) Data collecting systems: Homogeneous fields of the crash recording form; Homogeneous use of these forms; Homogeneous location results; Data format; Etc.
Any further comments?

8.10 National Roads Authority, Ireland

You and Your Organisation

Data on Interviewee

Interviewee:	Alastair de Beer
Position:	Project Manager (Safety
Representing which organisation:	National Road Authority
Country:	Ireland
Years of experience in this field:	15
Email address:	adebeer@nra.ie

Can you give some background information about your role and responsibilities?

Implementation of European Safety Infrastructure Directive,
Engineering Standards Departures Oversight,
Geometric Design Team Leader
European Working Group Delegate -(CEN 226 WG1) Safety Barriers
Health and Safety Support
Programme Executive Board member (PEB) for CEDR Safety Research projects

Data on Interviewee's Employer

Name: National Roads Authority (NRA)

Country: Ireland

(if different from above)

Responsibilities: National Road Authority

For Road Authorities:

Network length: 5413.429 km (31/12/2010)

Network Composition (e.g. kms of different types of road if available):

Motorway 900.269 km (16.63%) Dual Carriageway 324.353 (5.99%) Single 4188.807 (77.38)

Region under Road Authority's management: All national roads

Annual road works budget and percentage attributable to traffic management:

Difficult to say as different budgets for major and minor schemes and different budgets for road maintenance and road rehabilitation and different budgets for national roads and local and regional roads

Size of direct labour force (100's): 110

Size of contract labour force (100's): Answer not known

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety?

Health and Safety Regulations:

The Safety, Health and Welfare at Work Act 2005 (http://www.hsa.ie/eng/Legislation/)

The Construction Regulations (S.I. 504 of 2006 and S.I. 423 of 2008)

Guidelines:

1. Health and Safety Authority have published guidelines for working on roads: Working on Roads Guidelines

(http://www.hsa.ie/eng/Publications_and_Forms/Publications/Work_Related_Vehicles/Working_on_Roads_Guidelines.html)

2. The NRA, Department of Transport, the Health and Safety Authority and the Local Government Management Services Board published: Guidance for the control and management of Traffic at Roadworks

http://www.lgcsb.ie/sites/default/files/guidance_for_the_control_and_management_of_traffic_at_roadworks_-_second_edition_-_2010.pdf

3. The Department of Transport has published guidelines: Temporary Traffic Measures and Signs for Roadworks

http://www.transport.ie/upload/general/12971-tsm_chapter_8-8.pdf

Is the safety of road workers viewed as a problem?	Yes	
If yes, do you have a strategy in place for dealing with this problem?	Yes	

How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)?

A strategy was developed by observing and studying best practices in other countries.

(Until recently the local authorities were the clients for road works in their jurisdiction. This resulted in an inconsistent approach to road worker safety and no overseeing body. The NRA will now be the clients for road works on all national routes and have therefore a more hands on responsibility and more control over the issue. They have therefore developed a strategy for road worker safety and have developed this from best practices in other countries.)

Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety?

This is unknown as the NRA are not responsible for the direct labour so it would be in the budget of the contractors

	Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in bold italics refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? (if “no” please go to section 3.2)	Yes	No

Who records these data?

When a road collision occurs (including collisions at roadworks) the police fill in a form recording details of the incident. (CT68 form)

If an accident occurs where a local authority is the client, the local authority and the contractor will also

fill in accident report forms and submit this to the NRA. (LA 16 form)

A road collision form should also be submitted to the HSA (Health and Safety Authority) by an employer if an accident occurs to an employee.

These reports should indicate if the accident occurred at a roadworks but it will not necessarily indicate if it a road worker was involved. This depends on the level of detail in the description of the accident. It is not a field in itself on the form.

It is not easy to get the information from the form as you have to read through the narrative and it may or may not be included. This will depend on the person filling in the form. Now that the NRA have more control as clients, they have developed a new form that the police will fill in from now on which has a specific field for road worker accidents.

What process is followed from reporting/form filling through to whether these are held in a database?

The police submit all forms to the Road Safety Authority (RSA) where all incidents are put into a database. The database indicates if the accident occurred at a road works but does not indicate if a road worker was involved.

The local authorities and contractors submit the LA 16 form to the NRA and employers submit the road collision form to the HSA

What fields (and options) are included in the form/database? Please list these.

OR

Please append any forms used (this may be a blank form that is not filled in)

Database complied by RSA from police report forms includes the following headings:

Accident number, Accident type, Date, Time, Day of week, Speed limit, Investigated at scene, Number of vehicles, Number of pedestrians, County, Local Authority Number, City/Townland, Subzone, East, North, Street codes, Code number, Intersecting street code, Code of intersecting street, National route, Motorway, Route number, Counting section, Subsection, light condition, Weather 1, Weather 2, Surface condition, Junction control, Road character 1, Road character 2, Road marking 1, Road marking 2, Skidding, Road works, Road width, Junction type, Road type, Primary collisions type, Single vehicle collision with, Pedestrian action 1, Pedestrian action 2, Driver action 1, driver action 2, Exiting/entering 1, exiting/entering 2, Contributory action 1, Contributory action 2, Driver resident 1, driver resident 2, Driver learner 1, driver learner 2, Familiar with location 1,Familiar with location 2, Driver walkman 1, Driver walkman 2, Pedestrian light 1, Pedestrian light 2, Pedestrian armband 1, Pedestrian armband 2, Pedestrian none 1, pedestrian none 2, Pedestrian walkman 1, pedestrian walkman 2, Driver trip purpose 1, Driver trip purpose 2, Pedestrian trip purpose 1, pedestrian drip purpose 2, Road factors, Single accident cause, Driver 1, Driver 2, Pedestrian 1, pedestrian 2, Road factors, vehicle factors, environment, Registration 1, Make/model 1, Primary/secondary collision 1, vehicle type 1, loaded 1, vehicle defects 1, road tax 1, insurance 1, certificate of road worthiness 1, driving license 1, category of license 1, Test (at scene) 1, Result (at scene) 1, Test (at station) 1, Result (at station) 1, Test (at hospital) 1, Result (at hospital) 1, Bureau seal 1, Registration 2, Make/model 2, Primary/secondary collision 2, vehicle type 2, loaded 2, vehicle defects 2, road tax 2, insurance 2, certificate of road worthiness 2, driving license 2, category of license 2, Test (at scene) 2, Result (at scene) 2, Test (at station) 2, Result (at station) 2, Test (at hospital) 2, Result (at hospital) 2, Bureau seal 2, Number of remaining vehicles, Casualty type 1, Associated with vehicle 1, Age 1, Sex 1, Severity 1, Taken to hospital 1, Seat belt 1, Casualty type 2, Associated with vehicle 2, Age 2, Sex 2, Severity 2, Taken to hospital 2, Seat belt 2, Casualty type 3, Associated with vehicle 3, Age 3, Sex 3, Severity 3, Taken to hospital 3, Seat belt 3, ... Associated with vehicle 12....., Remaining fatalities, Remaining injuries, Remaining pedestrian fatalities, remaining pedal cyclist fatalities, Remaining motorcycle fatalities, remaining car fatalities, Remaining PSV fatalities, Remaining goods fatalities, Remaining other fatalities, Remaining unknown fatalities, Remaining pedestrian injuries, Remaining pedal cyclist injuries, remaining motor cyclist injuries, Remaining car injuries, Remaining PSV injuries Remaining goods injuries, Remaining other injuries, Remaining unknown injuries, Killed, SI, MI, UI, TI, TC, Division, PULNUM, X, Y (GPS co-ordinates)

LA 16 form attached (LA 16 form is the form filled in by the local authorities, who until recently would

have been the client on most road works. The NRA will now themselves be the clients and they have a new form with a field for road workers) Road Collision form attached		
Are there any challenges that you face with accessing or using the data?	Yes	
If yes, please describe these challenges Until now, as the NRA were not the direct clients, the information had to come from the RSA. Now that the NRA will be the clients on road works on national routes they will be able to get the information directly from the police. This will be a big advantage as they have had up to two years delay obtaining data in the past. The NRA will have more control now that they can link directly to the police to obtain data.		

Near misses involving road workers

A near miss is "an event that could have caused harm but due to fortunate circumstances did not". This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?	Yes	
If yes, how is a near miss defined in your country? A near miss is an unplanned event that did not result in injury, illness, or damage - but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage.		
Are near miss data collected for incidents involving road workers? (if "no" please go to section 3.3)		No (Not on a national basis)
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?)	Yes	
Do the data cover the whole road network for which you are responsible?	Yes (and more)	
Do you collect your own information on road user accidents on the roads that you are responsible for?	Yes (fatalities only)	

Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data? LA 16 form attached (form filled in by local authorities and submitted to NRA following an incident at a road works zone. CT 68 form filled in by police and information then given to RSA. NRA can then request information from RSA (headings in database as above). There is however more relevant information for the NRA on the LA 16 form. A new form has been developed by the NRA with a specific field for road worker accidents.		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? The description of the incident should specify that the incident occurred in a road works zone. There is also a field/tick box to indicate whether the incident occurred in a road works zone.		
Is it possible to identify road worker casualties directly from the road user accident data?	Yes	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? Yes if it is in the description but this is not an easy task and it is not guaranteed that it will be included in the description		
If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present) In cases where it is not in the description, the information can be used to deduce whether it was a road worker – such as the example given in this question.		
Are there any challenges that you face with accessing or using national road user accident data?	Yes	
If yes, please describe these challenges The process until recently required the NRA to obtain the data from the RSA and there have been long delays. They have overcome this problem by becoming the client themselves and they can now obtain the information directly from the police		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)?		Not known
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)?		Not known
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)?		Not known

Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works?	
	Not known

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if "no", please go to section 3.5)		No (not on a national basis)
Who records these data?		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?	Yes	No
If yes, please describe these challenges		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? The NRA have just started recorded this information themselves (a month or so ago approximately)		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options OR Please append the form used (this may be a blank form that is not filled in) * This information will be provided by email following the interview		
What process is followed to collect and record this information? Are there forms/databases? Web based data base		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?) Just recently started on trial basis so this is yet to be determined		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded? Yes. The NRA have published a standard (NRA HD 16/12) title 'Temporary Safety Measures Inspection' which provides guidance on establishing an inspection system for Temporary Safety Measures applying to road works on National Roads. This standard addresses the requirements of the EU Directive 2008/96/EC on Road Infrastructure Safety Management (RISM) and its transposition into Irish Law under S.I. No. 472 of 2011. Section 2.8 specifies the frequency of inspections to be carried out. The frequency is determined by the duration of the Road Works. The inspection form can be viewed on their website:		

(http://www.nra.ie/RepositoryforPublicationsInfo/file,18495,en.pdf)		
Are there any challenges that you face with accessing the information?	Yes	
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.) Only just started to collect this information and it is yet to be determined if it will be successful		

Other data

Are traffic flow data available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) Traffic counters count traffic flow on a daily basis and this is all computerised.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) Road length data on all national routes are available in report format on the NRA website. These reports are published annually. http://www.nra.ie/Publications/GeneralPublications/#d.en.3464 The data is more comprehensive for motorways Summary of the road lengths are provided on p.g. 2 of this document.		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?	Yes	
If so, what are these (please give as much detail as possible) Getting road worker data is difficult as you have to read through the description of the incident. Also, until now where the NRA can access data directly from the police, there have been long delays obtaining data.		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?	Yes	
If no, how is road worker safety managed (experience, good practice)?		
If yes, Which data sources do you use to manage road worker safety? Inspection forms (http://www.nra.ie/RepositoryforPublicationsInfo/file,18495,en.pdf) These inspection forms are mentioned above and are filled in during the Temporary Safety Measures Inspection carried out in accordance with the European directive		
How are the data currently used (policy, strategy, interventions, monitoring performance)? Data from the inspection forms enables the NRA to monitor where certain issues are reoccurring from inspection to inspection, directly compare road works with temporary safety measures, ensure that standards on Temporary Safety Measures at road works are properly applied and make changes if necessary (intervention).		

What analyses are undertaken? Analyses are dependent on what information is required e.g. information on road users or road workers or safety of layouts etc.
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? The inspection form rates the Temporary Safety Measures using a colour coding system similar to traffic lights. Green is good practice, orange indicates the system or operation requires improvement and red means that the conditions require immediate correction or improvement. This system allows good and bad practices to be clearly seen and also allows the NRA to show what good and bad practices are.
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Health and Safety Authority (HSA)

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
If no, please give reason		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes (Useful but difficult to collect)	
If no, please give reason		
Data on near misses involving the public at road works?	Yes (Useful but very difficult to collect)	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason		
Are there any other data that should be included? Layout information		
How would you use such data? Compare with European standard		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? Relying on different people and different organisations will make it difficult		

Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Allow us to assess where we can improve and determine if we can do something better		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?	Yes	
What might these challenges be? How could they be overcome? Relying on guards to accept and implement changes (to forms). Have already asked for changes for general traffic accidents and this took a long time to come into effect (15 years!)		
Any further comments? No		

8.11 Rijkswaterstaat, Netherlands

You and Your Organisation

Data on Interviewee

Interviewee:	Maaikel Koenis
Position:	Adviseur Werk in Uitvoering (road works advisor)
Representing which organisation:	RWS
Country:	Netherlands
Years of experience in this field:	0.5
Email address:	maaikel.koenis@rws.nl

Can you give some background information about your role and responsibilities?

The organisation is divided into different divisions that manage projects concerned with maintenance of the roads and constructions. There are guidelines by National Division of the organisation to specify expected practices by contractors regarding worker safety. 3 main documents state the level at which contractors should work.

Maaikel works with two others working at a higher level (strategic) to improve road worker safety and develop policy in this regard. So his role is to check that all actors use the guidance that applies regarding safety at work sites. PDGA: Plan Do Check Act.

Others drive about and check e.g. barriers are as they should be for a particular work site.

Data on Interviewee's Employer

Name:	RWS
Country:	Netherlands
Responsibilities:	National Road Authority

For Road Authorities:

Network length: 8,000KM

Network Composition (e.g. kms of different types of road if available):

Mostly A Roads (Highway) and N Roads Rural – lower quality

Region under Road Authority's management: whole country

Annual road works budget and percentage attributable to traffic management:

C 37 Mill Euros, only concerned with road surface and lining, not signals etc.

Size of direct labour force (100's): zero

Size of contract labour force (100's): Guess at thousands over a whole year

Appreciation of the issue

What, if any, is the legal basis for ensuring road worker safety?

Main issue is that all workers on site for sub-contractors must have taken a particular training

His is DRL1900101. The training is given by experts who have a permit given by RWS which is the interviewees organisation.

There is government pressure for H&S for their own workers by interviewee was not sure if this duty of care passed for sub-contractors.

Is the safety of road workers viewed as a problem? Mixed attitudes – some yes, some no	*Yes*	No

If yes, do you have a strategy in place for dealing with this problem?		No
How was the strategy developed? Was it informed by data, policy, experience, or expert opinion (or a mixture)? They are working on this currently: so checking that road workers have the right training – no thorough checks in place yet, these are being developed currently. Other strategies such as looking at different layouts that could be safer are being initiated, this may include using higher standard barriers for example or changing the layout in other ways. They are going through processes of asking colleagues for experience and suggestions but are also looking at practice in other countries e.g. Belgium.		
Is it possible to give an indication of the % of the overall road work/maintenance budget that is dedicated to deal with the issue of road worker safety? Tough question: the main method at moment is to specify what layout. There is no specific budget.		
		Not known

Information and data availability

This section aims to identify what information and data are available relating to road worker accidents and road user accidents at road works. It also asks about what the data covers and how it is managed.

Please use the tables below as a prompt to guide discussions.

(Note: the text in *bold italics* refers to questions already included in STARs questionnaire which has asked for information about layouts, standards, operational practice and traffic flow – but NOT data concerning the location, duration and type of layout).

Please ask the interviewee whether they are aware of the STARS project and have provided answers to their questionnaire?

The first questions will relate to road worker accident and near miss data only (road user accident and near miss data will be covered in separate questions later in the discussion)

Road worker accident data

Are road worker accident data collected? *(if "no" please go to section 3.2)*	Yes	
Who records these data? There is a duty on sub-contractors to report all incidents and near misses too. This is dealt with by another department. (*email check)		
What process is followed from reporting/form filling through to whether these are held in a database? Not known, email check		
What fields (and options) are included in the form/database? Please list these. OR Please append any forms used (this may be a blank form that is not filled in) Email*		
Are there any challenges that you face with accessing or using the data?		No
If yes, please describe these challenges Maaikel asked for an export recently and got a dump in MS Excel. He got this quickly, but it was indicated that it would not be a complete picture as not all incidents were being captured or registered.		

Near misses involving road workers

A near miss is “an event that could have caused harm but due to fortunate circumstances did not”. This may include road user accidents at road works where the road worker was not harmed.

Is there a definition for a near miss available in your country?	Yes	
If yes, how is a near miss defined in your country? Email*		
Are near miss data collected for incidents involving road workers? *(if “no” please go to section 3.3)*	Yes	
Who records these data? As before for incidents		
What process is followed from reporting/form filling through to whether these are held in a database? As before (email request for details)		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the data?		No
If yes, please describe these challenges		

Road user accident data

Do you have access to national road user accident data (such as that collected by the police?): Police data	Yes	
Do the data cover the whole road network for which you are responsible?	Yes	
Do you collect your own information on road user accidents on the roads that you are responsible for?		No
Is there a crash recording form or forms available (if so please append), or can you list the resultant database fields? Note: the STARs questionnaire asks: *If accident data are collected at road works (either road user or road worker), is it possible to have some examples of the actual data?* This is publically available police data from the web site for Netherlands.		
Is it possible to identify which road user accidents happened at road works	Yes	
If so, how is this achieved (for example a specific field to record the presence of road works)? There is a field that specifies if a road works were going on at time of the crash. They can search for road works crashes.		
Is it possible to identify road worker casualties directly from the road user accident data?	Don’t know	
If yes, how is this achieved (for example a specific field to record a casualty who is a road worker)? NA		

If no, can road worker casualties be identified indirectly from other road user accident data? (for example using a combination of information such as “pedestrian struck on road” for a road where pedestrians are not permitted and road works are present) Not sure, probably not		
Are there any challenges that you face with accessing or using national road user accident data?	Yes	
If yes, please describe these challenges They access same data that anyone can access on the web – digitally stored and it is not user friendly. They have to export the data required.		
If no road user accident reporting form is provided, please answer the questions below giving as much detail as possible		
How is the location of the accident recorded (for example, road number, closest landmark, precise map coordinates, GPS co-ordinates)? No Maaikel said they could not plot crashes out as there were no grid refs supplied. You can query on e.g. National Highway but not exact location. He was aware that the full police system would include the ability to plot crashes on a map.		
What details are recorded about the road where the accident occurred (for example junctions present, type of junction, bends, number of lanes etc.)? He was not sure what precisely was available		Not known
What details are recorded about the general circumstances of the accident (e.g. day, time, weather etc.)? Email check		Not known
Are any accident causation data recorded? If so, by who and do any of the causation factors specifically relate to road works? Not known, probably not		Not known

Near misses involving road users at road works

Are near miss data collected for incidents involving the public at road works? (if “no”, please go to section 3.5)		No
Who records these data? Maaikel stated it would be useful to have this, but it would be difficult to identify these cases: e.g. if a vehicle nearly hits cones buts swerves at the last minute and there is no actual injury or collision.		
What process is followed from reporting/form filling through to whether these are held in a database?		
What fields (and options) are included in the form/database? Please list. OR Please append the form used (this may be a blank form that is not filled in)		
Are there any challenges that you face with accessing or using the	Yes	No

data?		
If yes, please describe these challenges		

Information on road work schemes

Are details about road works (e.g. location, type, dates / times, speed limit and duration of road works) recorded?	Yes	
Who records this information? Information on all road works for commissioned by RWS are held in a database (possibly in excel – or that might be export format).		
What information is recorded? (location, type and layout, dates/times, speed limit, presence of speed controls/enforcement measures in place, actual vehicle speeds, risk minimisation measures (e.g. signage, flagmen etc.) and duration of road works etc.) Is there is a form/database? If yes, please list all fields and options Location, type and layout, A figure or scheme type from fixed designs (from 1 to 40, e.g. No. 5 is a closed third lane.) is recorded not detailed individual design. Information on the speed limit or enforcement measures is not held. If there is a locally perceived safety issue with a particular scheme the police are asked to intervene at the local level to have a presence. OR Please append the form used (this may be a blank form that is not filled in) Email request		
What process is followed to collect and record this information? Are there forms/databases? Not sure: Email request		
What is the validity of the data (i.e. how accurate is the recording of planned work versus what is actually done?) Maaikel did not think that over-runs for example were actually amended in this RWS database whether we are talking a few hours or days in the case of major works.		
Are checks undertaken to determine if the works are implemented in accordance with the plans? Are the results of these checks recorded? This is done in 3 main ways: By the project team at RWS itself he has colleagues who are concerned with the contractual side and they ensure that appropriate safety measures/controls are incorporated into the plans for particular works by a sub-contractor There are 300 Inspectors who drive about and have a specific task to check safety and free flow of traffic on the network generally but also at road works. They will check that correct cones/flashers are used at works. Limited number of Inspectors (4) who control roads at a higher and more specific level than the 300. They look at specific traffic measures and safety and will get involved at specific events that may be disruptive to flows and/or safety levels such as a big concert occurring or major sporting events. They check that proper provisions are made to preserve safety and traffic flows.		
Are there any challenges that you face with accessing the information?		No
If yes, please describe these challenges (may include privacy/timeliness/format of data – aggregated data available only etc.)		

Other data

Are traffic flow data available across the network?	Yes	

If yes, please describe what data are available (including level of detail of data collected, how often data are collected, how widely data are collected etc.) Maaikel doesn't have direct access himself but the organisation has information up-to-the-minute on traffic flows right across the network. Basically real-time.		
Are road length data (i.e. kilometres of each road type) available across the network?	Yes	
If yes, please describe what data are available (including level of detail of data collected, how often data are updated etc.) Email request		
Are there any other data sources that are relevant to road work safety management that you use that have not been mentioned?		No
If so, what are these (please give as much detail as possible)		
Are there any other with data availability you find a problem (e.g. reliability/ coverage/ accuracy/ accessibility/ data sharing)?	Yes	
If so, what are these (please give as much detail as possible) Mainly they are currently looking into introducing contractual arrangements to force the contractor to report all accidents and near misses currently. This will ideally be financial penalties if they cannot demonstrate that they have reported all relevant incidents.		

Current Data Usage

This section aims to identify how the current data that you have are used to manage road worker safety.

Are data used to manage road worker safety?		No
If no, how is road worker safety managed (experience, good practice)? They are working towards doing this better currently to make managing of this aspect of safety and risk much easier. Process is currently far from complete.		
If yes, Which data sources do you use to manage road worker safety? None systematically		
How are the data currently used (policy, strategy, interventions, monitoring performance)? NA, don't for example measure hours of works without incident etc.		
What analyses are undertaken? NA		
What metrics are used to monitor performance? Is performance against any strategy or targets monitored? NA, don't for example measure hours of works without incident etc.		
Who are the key agencies/organizations that should be involved in improving data availability for road worker safety in your country? Only RWS which has main responsibility and contractors who need to implement good practices.		

Future opportunities

This section aims to identify whether a standardised database for road worker safety across Europe would be useful, how data might be used, and whether comparing or combining road worker accident data from different countries would be useful.

BRoWSER aims to collect consistent data to allow for comparison of road worker safety issues/ solutions within countries and also across Europe.

Would availability of consistent data on road worker safety across Europe help you to improve road worker safety?	Yes	
What types of data from the following types do you think would be useful?		
Data on collisions involving road users when at or near road works?	Yes	
~~If no, please give reason~~ Yes, it would be good to see if crash rates are higher during the duration of road work activities		
Data on collisions involving road workers?	Yes	
If no, please give reason		
Data on near misses involving road workers?	Yes	
If no, please give reason Difficult to identify and record these: also definitions may be very different		
Data on near misses involving the public at road works?	Yes	
If no, please give reason		
Data about road work schemes?	Yes	
If no, please give reason Not as useful as the incident information		
Are there any other data that should be included? No		
How would you use such data? Mainly look at what others do especially if they seem to be operating more safely, also do some benchmarking. For example they have looked at Belgium where they have flag men – dangerous for these individuals but the over-all risk to road users and other workers may be reduced net.		
Can you foresee any challenges with collecting the data mentioned above? If so, what would they be? There will be many challenges e.g. the under reporting issues means it may be hard to know how representative the data is of the real situation as the total number of incidents are unlikely to be reported. Big Challenge!		
Would the ability to compare or combine your road worker accident data with that from other countries be useful for your management of road worker safety?	Yes	
What would this ability allow you to do and why would this be useful? Not sure specifically		
If collecting data consistent with a proposed future EU standard for road worker safety data (EuRoWCas) requires minor changes to your data collection methods, would this be possible in order to realise the benefits of having consistent data comparable with that for other EU countries?	Yes	
Do you foresee any challenges with this approach?		No
What might these challenges be? How could they be overcome? Ok no big issue		

Any further comments?

RWS and the Government do not currently demand the same training level for their own/government employees compared with contractors who all go onto the road side and to construction and works sites.

So they may have 200m of a new asphalt type which they are monitoring and may visit this but they don't need certificate of training demanded of the contractors.

8.12 Družbe za avtoceste v Republiki Sloveniji, Slovenia

Awaiting full write-up.

Road worker safety strategy/vision

On the national level:

RESOLUCIJA

NACIONALNEGA PROGRAMA VARNOSTI CESTNEGA PROMETA ZA OBDOBJE OD 2013 DO 2022

(SKUPAJ ZA VECJO VARNOST)

Resolution on the National traffic safety programme 2013 to 2022 (together for greater safety)

Officially issued on 5th May 2013

National Road Safety Program is a strategic document which deals with the national security policy and important issues concerning the road safety in Slovenia for the period 2013-2022. The National program provides a vision and goals. It determines the measures which need to be carried out in order to have an efficient road safety. The primary goal of the program is the effort to reduce the worst consequences in road traffic accidents (fatalities and severely injured) which will be reached with the effective measures from the program and by ensuring political willingness and social support.

The whole document has 121 pages, only half of the page 33 deals with the safety of road workers.

Translation of the text is below.

Summary of the section 'Roadworks':

Roadworks are important segment of safety on the Slovenian roads. Despite the fact that there are no detailed data on the traffic accidents in the workzone areas, current monitoring of the traffic in worzones shows that the traffic rules are not respected and the road worker safety is questionable.

The main goal:

- To improve the traffic safety in workzones

Activities:

- Analyses of data on the traffic safety at workzone areas
- Revision of the current legislation
- Coordination of the time schedules of roadworks (DARS and DRSC)
- Surveillance of the traffic speed
- Control of the workzone closure plans (by traffic safety experts)
- Inspection of road closures, due to roadwork and various events)
- Improvement of safety of the roadworkers

Responsible authorities:

- Ministry for Traffic infrastructure, DARS, DRSC and Police

DARS makes an internal roadworkers safety policy plan on yearly basis, DRSC does not.