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BRoWSER: Base-lining Road Works Safety on European Roads

Input Data Definition Document for EuRoWCas

Deliverable No 2.1

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Input Data Definition Document for EuRoWCas

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Version: 1.0

1 Work Package 2: Establishment and definition of the input data requirements

The aim of this work package is to develop a harmonised data framework for:

A) The collection of data on worker injuries/near misses and

B) The collection of optimised road works layouts for safety.

Information on injury accidents (including fatalities) and near-misses relating to road workers needs to be gathered across Europe. This paper proposes a data framework which identifies the information required from European countries to enable systematic analysis of road worker safety. This framework facilitates collection of data for each country, incorporating parameters such as road characteristics and location details.

In summary, this paper provides a starting point for a road worker incident typology for Europe, including proposed input data requirements and definitions for the recording of road worker injuries/near misses for EuRoWCas.

For each accident or near miss, hereafter referred to collectively as incidents, it is envisaged that five different datasets are collected:

- Time, location and severity
- Overview of casualties, vehicles and equipment involved
- Carriageway characteristics
- Road work characteristics
- Environmental conditions

Within each of these datasets, a number of pieces of information would be systematically recorded.

In addition, for each vehicle[1] involved in the incident and for each person involved in the incident, a further dataset would be systematically recorded.

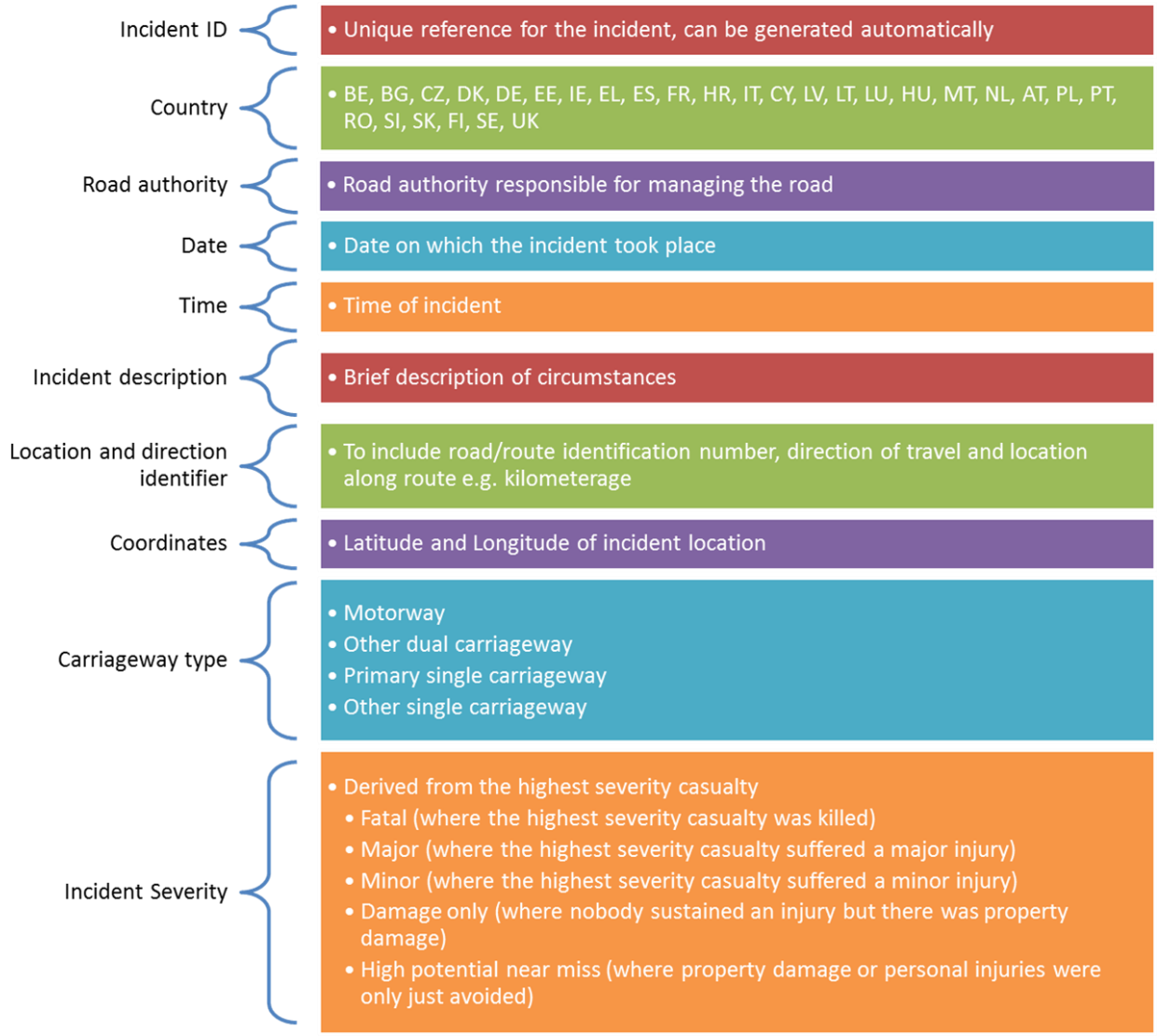
An incident reference number would be recorded so that the vehicle and people details can be linked to the relevant incident details; similarly, a vehicle reference number would be recorded where appropriate to link the vehicle details to the people details.

The datasets proposed are detailed in the following pages. The variables proposed for inclusion are listed on the left hand side; a list of the suggested options for each variable and/or an explanation of what is required for each variable, is then identified alongside the variable concerned.

In order to get best value from the data, all the suggested fields would be collected. However, for situations where this is not possible, core fields have been identified below the main lists. All fields collected in addition to these core fields would greatly enhance the dataset.

[1] Throughout this document, the word 'vehicle' means anything that has a driver - it includes e.g. road rollers

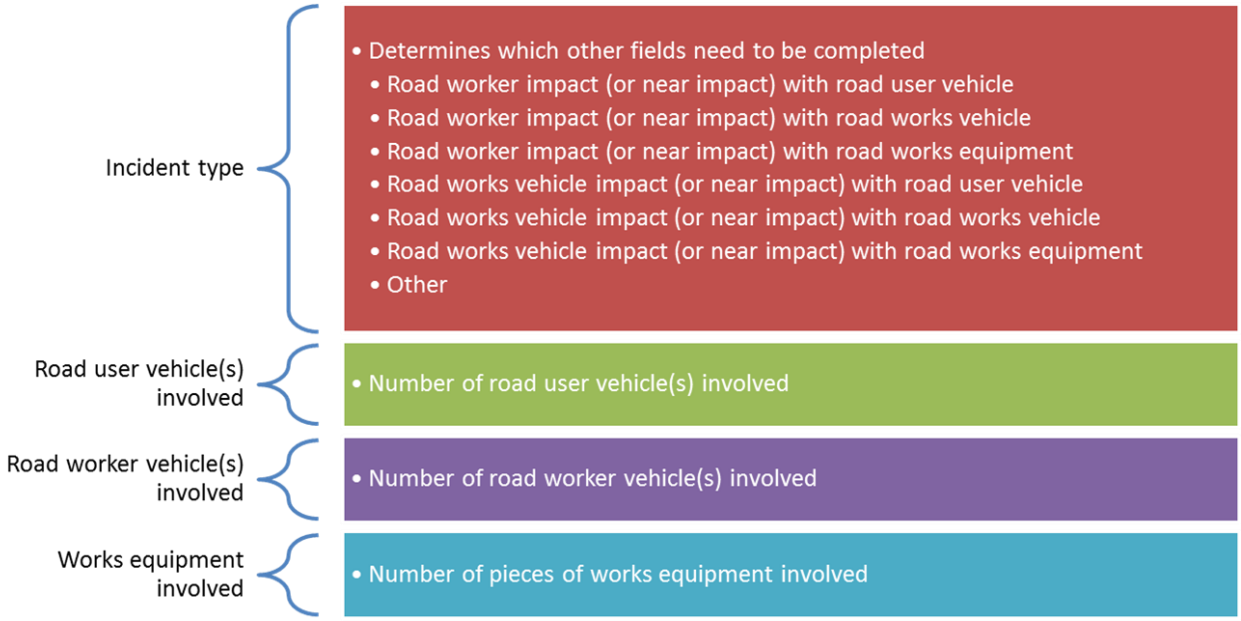
1.1 Variables to be recorded for each incident – time and location



Core fields from above:

- Road authority
- Date
- Time
- Location and direction identifier
- Carriageway type

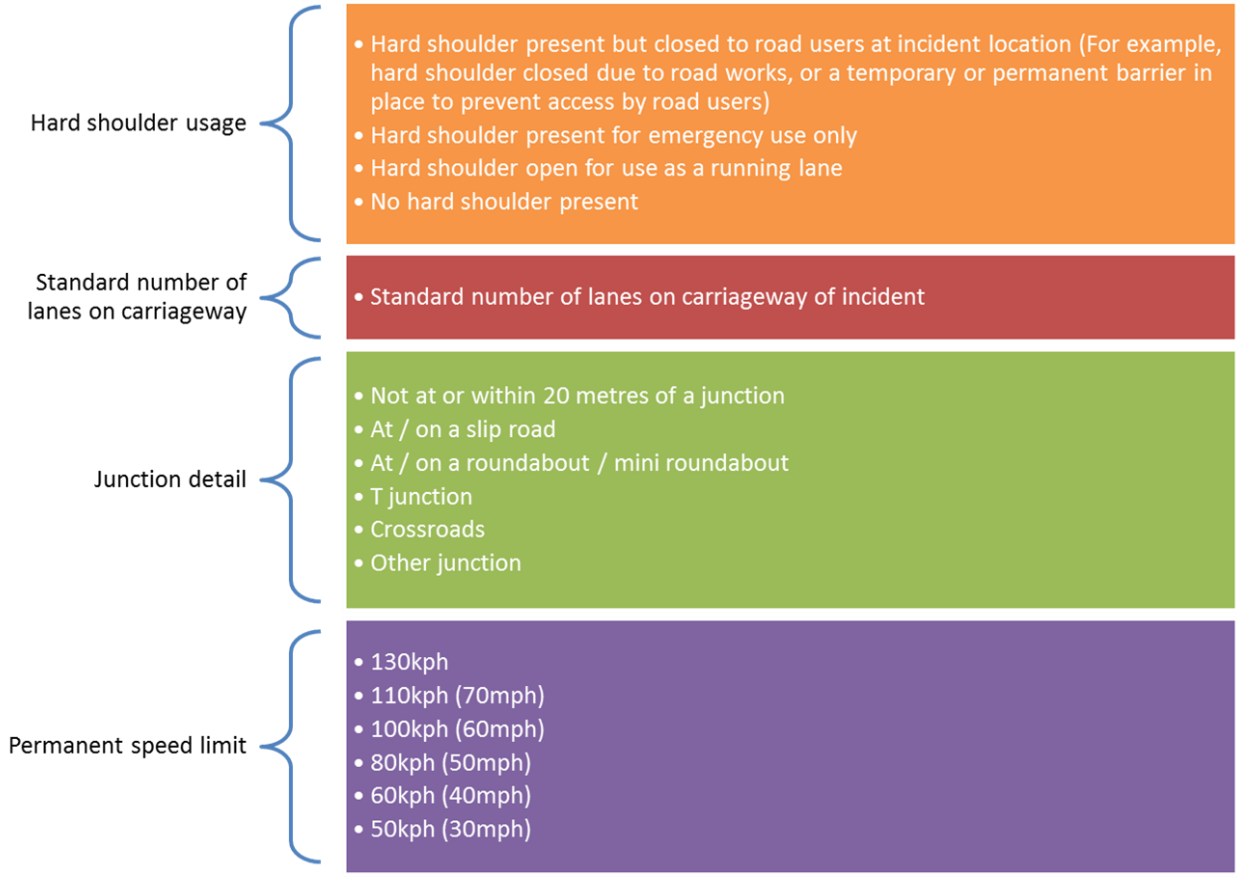
1.2 Variables to be recorded for each incident – overview of casualties, vehicles and equipment involved



Core field from above:

- Incident type

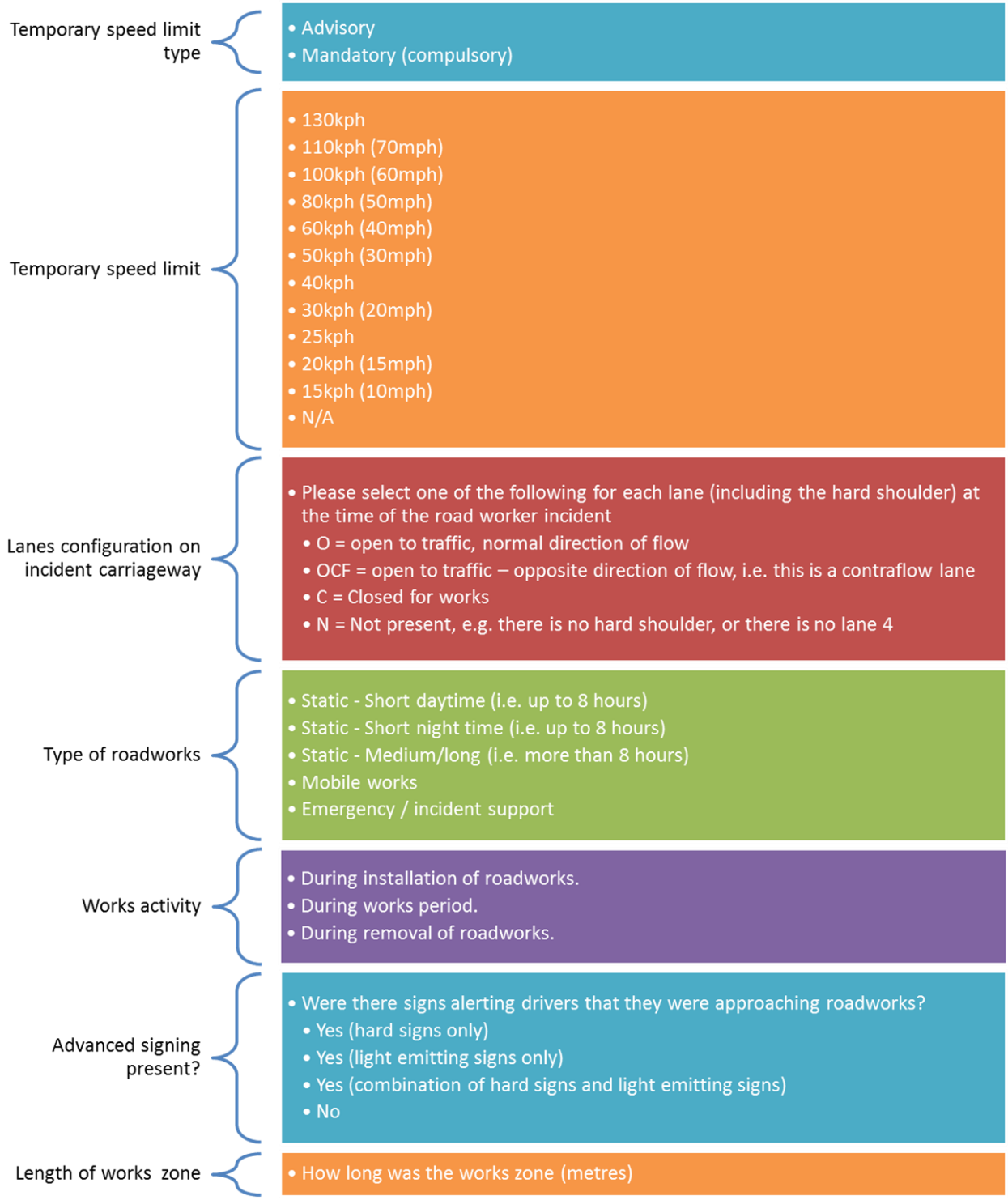
1.3 Variables to be recorded for each incident – carriageway characteristics

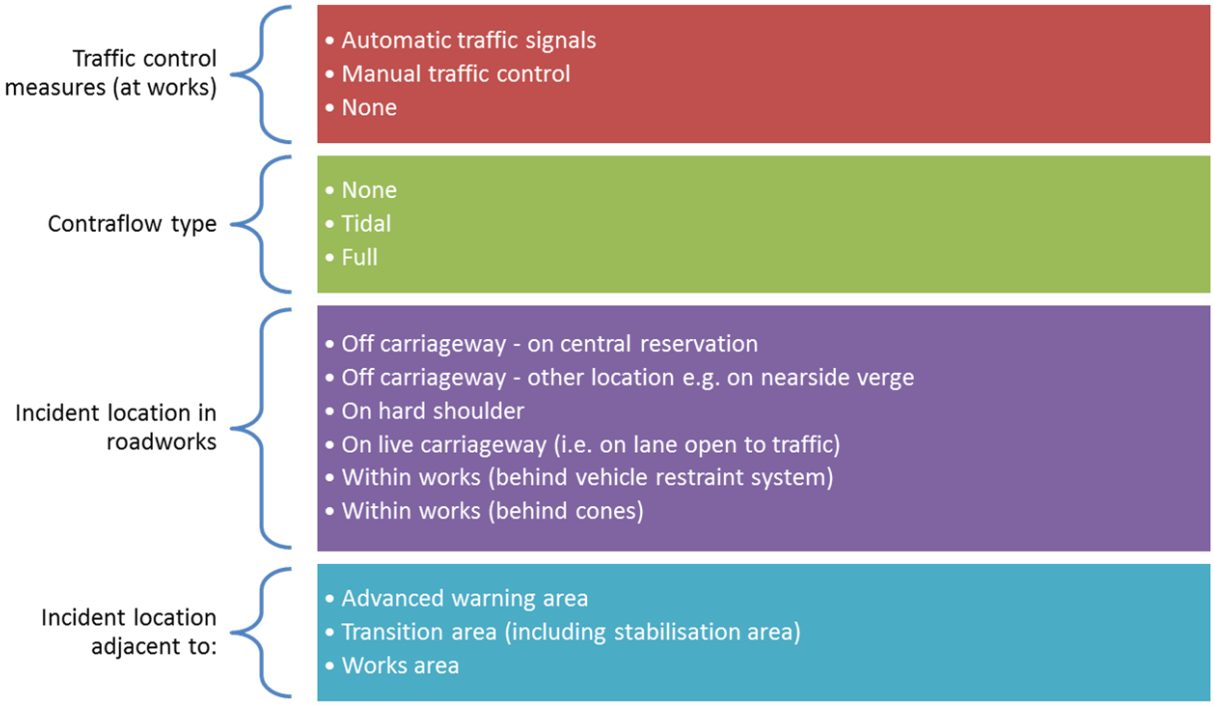


Core field from above:

- Permanent speed limit
- Hard shoulder usage

1.4 Variables to be recorded for each incident – road work characteristics





Core fields from above:

- Temporary speed limit type
- Temporary speed limit
- Lane configuration on incident carriageway
- Type of roadworks
- Works activity
- Incident location in roadworks
- Incident location adjacent to:

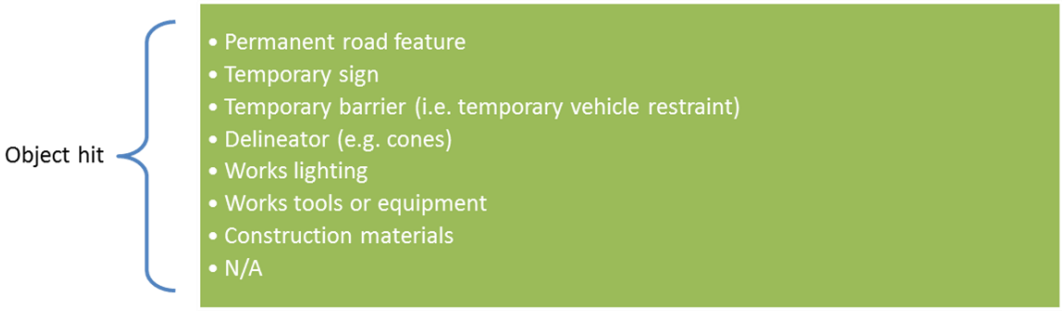
1.5 Variables to be recorded for each incident – environmental conditions

Core fields from above:

- Lighting
- Weather
- Visibility

1.6 Variables to be recorded for each person involved

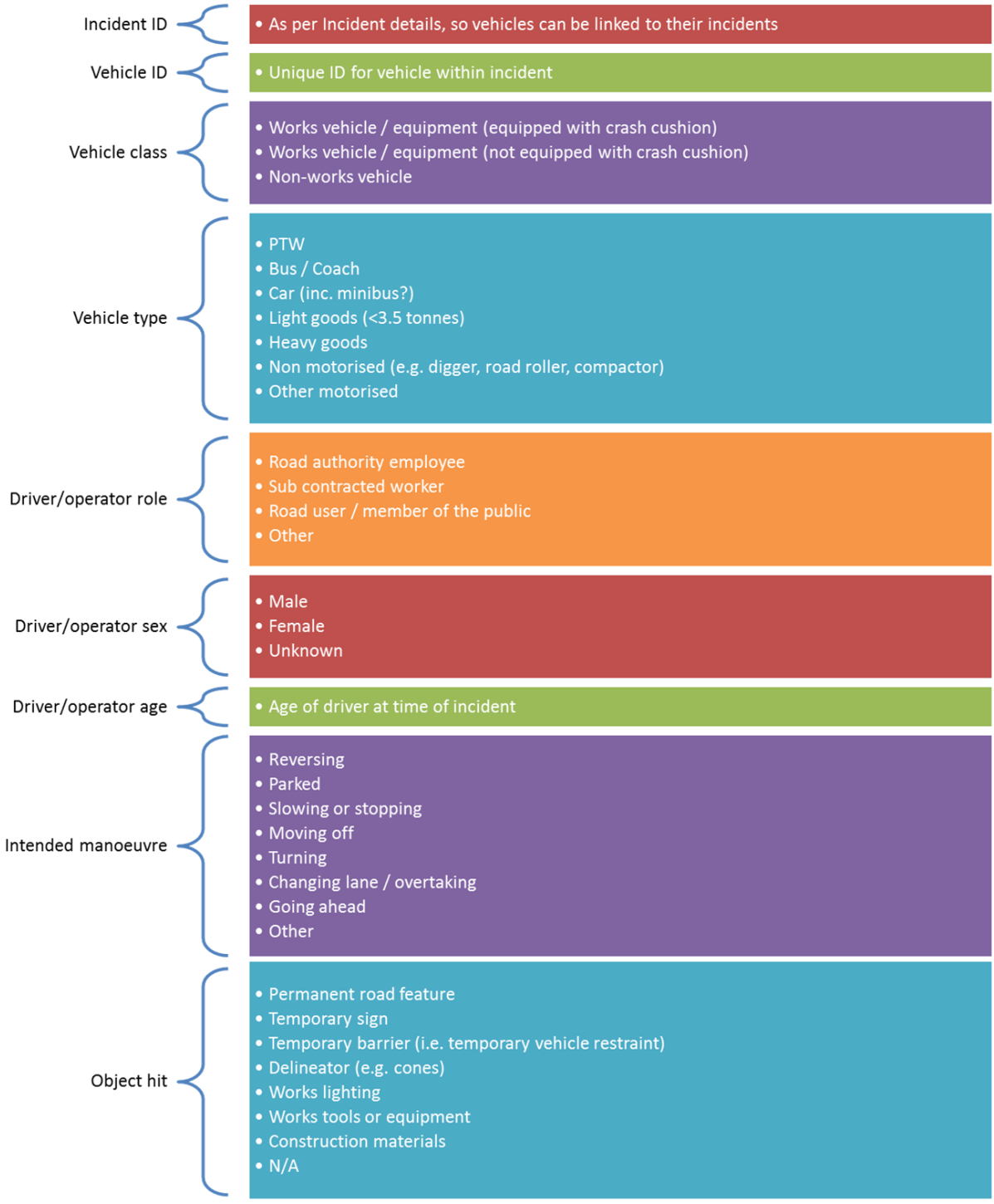
Incident ID	• As per incident details, so people involved can be linked to their incidents
Person ID	• Unique reference for person within incident
Vehicle ID	• If the person is in or on a vehicle, that vehicle's ID • If the person was outside of a vehicle, the ID of the vehicle which impacted them
Person class	• Driver of vehicle (including works vehicle) • Non-driver inside vehicle (including works vehicle) • Non-driver on rear of vehicle (including works vehicle) • Person outside of vehicle
Role	• Road worker • Road user / member of the public • Other (e.g. emergency services, vehicle recovery)
Activity (road workers only)	• Installing / removing temporary traffic management • Conducting works / inspection • Vehicle recovery • Other
Person location	• In central reservation • Off carriageway (e.g. verge) • On hard shoulder • On live carriageway (i.e. open to traffic) • Within works (behind vehicle restraint system) • Within works (behind cones)
Impact type	• Struck by vehicle (including if injured within vehicle) • Struck by equipment • Struck ground
Person's sex	• Male • Female • Unknown
Person's age	• Age of casualty at time of incident
Injury level	• Killed = died within 30 days of accident • Major injury = hospitalisation / seven or more consecutive days off work • Minor injury = treated at scene / less than seven consecutive days off work • No injury sustained



Core fields:

- Person class
- Role
- Activity (road workers only)
- Person location
- Injury level

1.7 Variables to be recorded for each vehicle[2] involved



[2] Throughout this document, the word 'vehicle' means anything that has a driver - it includes e.g. road rollers

Core fields from above:

- Vehicle class
- Vehicle type

2 CEDR - National Comparisons

Aim: Identify national differences in crashes at road works and so determine potential improvements in road works safety.

2.1 Process steps

1. Identify core data required
2. Locate core data required to enable comparisons to be made
    a. Crash data set
    b. Road works location and type information
3. Identify themes
    a. Frequency by type of works, location, time of day, etc.
4. Compare data sets between countries, especially at border regions
5. Compare standards and manuals of high- and low-performing works
6. Contrast contributory factors against manuals and standards
7. Identify possible shortfalls and therefore potential improvements
8. Determine and define best practices to reduce crashes at road works, improving safety for road users and road workers

2.2 Minimum Data Requirements

To enable comparisons between the crash rates at road works in different countries it will be necessary to locate two data sets:

- Road works information
    - Type of works
    - Location
    - Date and time of start and end of works
    - Link flow
- Accident information
    - Location
    - Date and time of accident
    - Number of vehicles involved
    - Types of vehicles involved

- Nature and severity of accident
- Number of casualties
- Contributory factors related to each accident, identifying both those which implicate / do not implicate road works

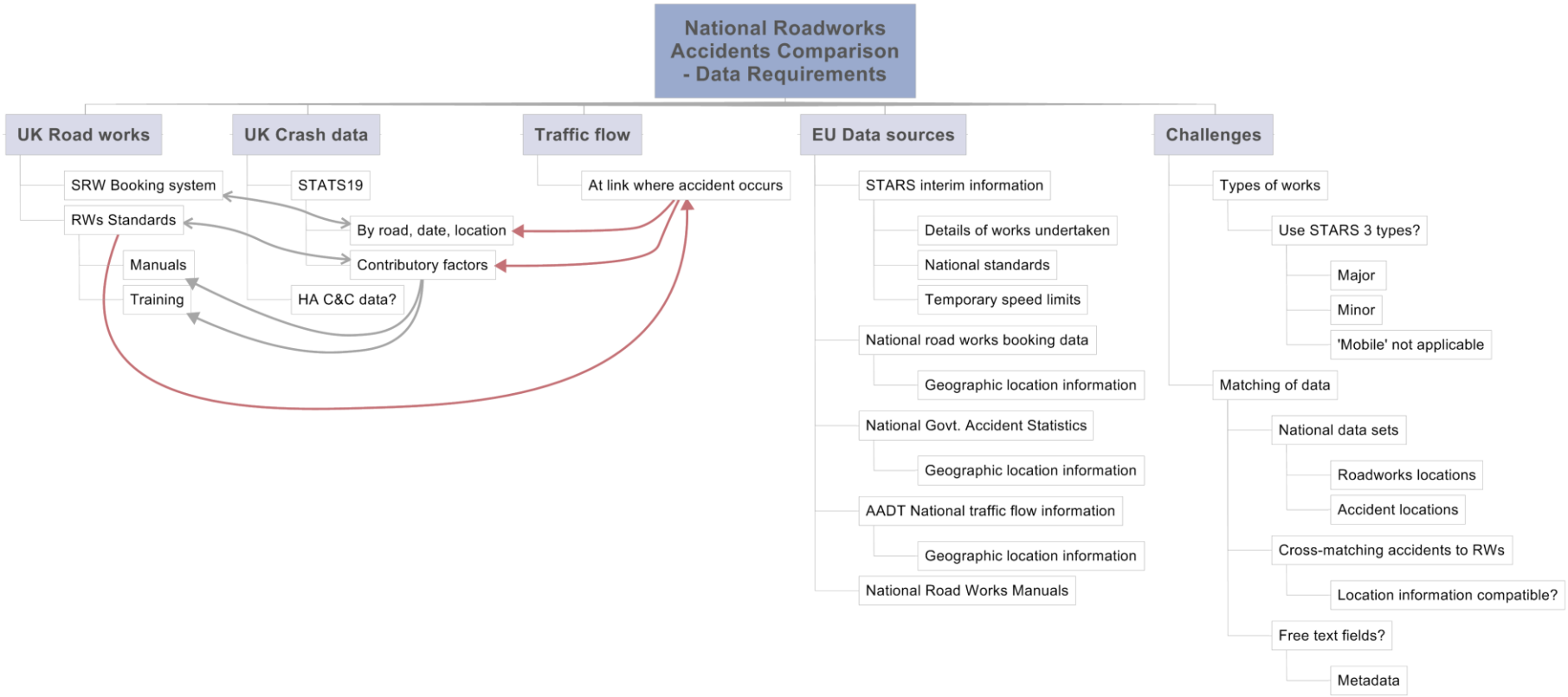
2.3 Process

Creating a relationship between the three data sets should allow identification of the contributory factors, if any, regularly associated with accidents at particular types of road works in each country.

It will then be necessary to locate the standards and manuals relating to the design and management of road works within the individual countries, then undertake an analysis to determine whether national differences in accident rates might be related to the application of principles given in the standards and manuals.

2.4 Outputs

- Identification of road works crash information contributory factors, by works type
- Comparison of road works crash frequency, by works type (STARS categories)
- Identification of contributory factors for crashes at road works
- Comparison of contributory factors against national standards and manuals
- Identify possible shortfalls and therefore potential improvements


National Roadworks Accidents Comparison - Data Requirements
UK Road works
SRW Booking system
RWs Standards
Manuals
Training
UK Crash data
STATS19
By road, date, location
Contributory factors
HA C&C data?
Traffic flow
At link where accident occurs
EU Data sources
STARS interim information
Details of works undertaken
National standards
Temporary speed limits
National road works booking data
Geographic location information
National Govt. Accident Statistics
Geographic location information
AADT National traffic flow information
Geographic location information
National Road Works Manuals
Challenges
Types of works
Use STARS 3 types?
Major
Minor
'Mobile' not applicable
Matching of data
National data sets
Roadworks locations
Accident locations
Cross-matching accidents to RWs
Location information compatible?
Free text fields?
Metadata