

## CEDR Transnational Road Research Programme Call Safety

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Conférence Européenne  
des Directeurs des Routes  
Conference of European  
Directors of Roads

## Incursion Reduction to Increase Safety in road work zones.

### Summary of the IRIS workshop

11 October 2018

Taking place at Vias institute in Brussels, Belgium

#### Partners

KFV Kuratorium für Verkehrssicherheit, Austria

Lund University, Sweden

Vias institute, Belgium



The program started at 10:00 with welcome and introduction to the IRIS project by the project coordinator, András Várhelyi - Lund University, Sweden. Then, the following presentations about the findings of the IRIS project were made (available at [https://gallery.mailchimp.com/d437b9a44887634523b7f9b83/files/5abb284e-b8f1-41ea-b0ba-223890aa2bab/IRIS\\_Workshop\\_slides.pdf](https://gallery.mailchimp.com/d437b9a44887634523b7f9b83/files/5abb284e-b8f1-41ea-b0ba-223890aa2bab/IRIS_Workshop_slides.pdf)):

- Knowledge and current practices on traffic management at work zones by Stijn Daniels – Vias institute, Belgium)
- Human factors (Ludo Kluppels – Vias institute, Belgium)
- Measures to improve work zone safety (Bernd Strnad - Kuratorium für Verkehrssicherheit, Austria)

After the presentations, the participants were introduced to the themes of group discussions by the project coordinator. These two themes were:

- A. Problems at work zones
  - What are the main problems concerning work zone safety?
  - How could the situation be improved?
  - Which measures are promising?
  - Hindrances for introduction of promising measures?
- B. Road Safety Audit and Inspection at work zones
  - What are the main obstacles for implementing these tools?
  - Can more duties be put on the contractor?
  - How to handle deviations from the work zone design?

The group discussions took around one hour, and the main points, raised by the participants are noted below.

## Group discussions

### 1. *Group A - What are the major problems related to work zones and what can be done about it?*

Thirteen persons from six countries participated in the discussion.

The participants gave the following annotations:

- very little accident data available; statistics could be improved → e.g. fatal accidents are sometimes not related to work zones; there is a lack of data concerning work zone incursion → why do such things happen? Research on the topic is still needed
- more problems in short term work zones and at the beginning of works – after a couple of days people get used to the situation; more problems in urban areas than on motorways
- when contracting, in many cases, the money aspect is put before the safety aspect; often the cheapest way of setting up a work zone is used; safety seems to be not that important; the cheaper, the better, but cheapest solutions are usually not the safest solutions
- work zone design often does not suit the requirements of the work that has to be done; sometimes designers do not know about necessities of work zones e.g. not enough space for machines, needed space for storage of material, time line; find the right place for a work zone
- barriers at work zones are often used in the wrong way – not long enough, elements not connected.
- noise barriers reduce noise for the workers and also reduce distractions for the cars passing by because of the blocked view; there are tested systems already available (crash test)
- enhance the design of entrances and exits of work zone; currently they are usually in a 90° angle, and trucks exiting from the work zone cause problems because of their low initial speed.
- there are currently no safety products especially designed for specific road situations e.g. urban areas (bigger problems with work zone safety on lower network)
- speeding in work zones is a problem, heavy vehicles always drive 90kph, no matter if in a work zone or not and this leads to a problem with the barriers in use, since they are not designed for an impact with such a speed; setting new speed limits is a very complex task for the contractor → speed up this process? enforcing speed limits is a major issue, enforce speed limits by setting up average speed control enforcing speed limits has to be done by the contractor
- safety distance between vehicles while passing through work zones is too small → leads to increased accident severity.
- information for the road user needs to be enhanced, earlier information/warning signs, when approaching a work zone; traffic signs in work zones are written in many different languages → leads to confusion; guidance system through the work zone to prevent

congestion; information on “how long does it take me to get through the work zone?” is very helpful

- bad visibility of traffic signs in difficult light conditions e.g. when exiting a tunnel or during sunset
- too many different signs in work zones; reduce signs to focus on the important ones
- ITS are maybe a solution for long term work zones
- innovation vs. safety → there are a lot of good ideas, but it is unclear, how to implement them or sometimes it is not clear, if new solutions might cause safety problems. Example: mobile gantry is good for information of road users, but the mobile gantry itself is an obstacle so it should be positioned behind a barrier.
- lack of basic health and safety trainings of the employees in work zones
- practical training for employees in work zones can be useful; workers could be tested, if they are trained to work in such work zones
- work zones are no topic in current drivers training and testing; drivers are not educated well enough to pass work zones safely; people don't know the specific signs and cannot interpret them; work zones as a topic in driver education; better education e.g. in lane merging is needed

Three new “outcomes” of the discussion were:

- safety decreases over time; in the beginning, work zones are set up with high safety standards; over time, e.g. barriers are moved to make space for machines or material, people get lazy, etc.
- signs in work zones have to be understandable for most of the people → use images/pictograms instead of language, harmonize these signs all over Europe
- put together all important partners like client, project manager, companies etc. before setting up a work zone (or if problems occur) → everybody knows, what the others are doing, problems can be solved together by taking into account aspects of all companies involved.

## **2. Group B - What are the main obstacles for implementing Road Safety Audit and Inspection at work zones?**

Sixteen persons from five countries participated in the discussion.

The participants gave the following annotations:

- Lack in data collection and registration of incidents. The BROWSER project resulted in a database for reporting incidents, but it is not commonly used. Possibly only implemented in Ireland. Incident reporting it is done only in case of injury accident.
- The lowest price gets contract, which is often not the best possible implementation.
- The “economically most valuable” bid should win. The whole life cycle should be considered. Design, building, maintenance, finance. Contract can last 20, 30 or 50 years.

After that, quality is assessed and new contract is made. Can be a disappointment for the next contractor.

- The problem is that a company can be very good in building a bridge, but not that good in road safety; it should be a possibility to split that up.
- Part of the contract is to inspect every day and report to responsible at the road administrator.
- We tried to split the works and safety aspect, and paid for them separately, but it was more expensive. Contractors considered it easy money.
- Quite strict with timing and applying bonus if they finish early and malus if they finish late, may have impact on safety.
- Sometimes, new measures are implemented in the contract. Effectiveness assessment is done, but data is often contained by contractors. So, we don't have a global picture.
- Work zone safety audit and inspection, rather than Road safety audit and inspection. Because it entails more aspects than road safety;
- Sometimes, Road Safety Audit is done before the start of a road work; a couple of weeks later, the implementation is checked at the work site but there is no systematic procedure.
- In the UK, the Health and Safety law is followed, it is assumed that the contractor is competent. There is audit, but no formal safety audit. In Ireland, it is much more descriptive.
- NL: Let the contractor look at his own procedures, complying with ISO norms. Employees of Rijkswaterstaat (RWS) are not entirely used to this way of work, and tend to intervene too much. There are a lot of meetings with stakeholders and contractors.
- Contractors make comics for their own workers to help them apply the correct procedures, so, it works without additional rules, but by letting the contractors work it out themselves.
- At a new work zone, road marshals have to approve the situation. Work can be halted as long as it is not OK.
- Inspections are not independent, unless there is an injury incident, then, an independent inquiry follows.
- Independency and good relation between inspectors, administrators, contractors seem not to be a problem.
- The fine for not reporting an incident or deficiency is lower than the fine for having an incident or deficiency, so contractors sometimes take the risk to not report.
- There is a penalty system within RWS for inappropriate implementation. Auditors follow rules strictly. Contractors must follow rules carefully. Not much room for innovation.
- There is a lot of feedback, too much even. Results are already good, only fine-tuning is possible.
- Current focus on respect towards road workers (verbal abuse) Very frustrating for workers.

- There is a so called safety culture ladder with 5 steps at RWS in the Netherlands; Possibilities: Good and you know it; Good but you don't know it; Bad and you know it; Bad but you don't know it. Part of it are interviews, and part self-assessment.
- UK, similar ladder: safety maturity index. You get higher on the ladder with a more integrated approach rather than segmented responsibilities. Also there self-assessment is part of it.
- UK: accreditation for construction workers to make sure they understand the instructions, etc.
- Results are more important than procedures.
- There is a need for a platform to exchange good and bad ideas and examples.

After the group discussions, a short résumé was given in plenum. In summary, the issues discussed most were:

- Lack in data collection and registration of incidents.
- When contracting, often the cheapest solution wins, but cheapest solutions usually are not the safest solutions. The “economically most valuable” bid should win.
- work zone design and implementation problems
- Independency and good relation between inspectors, administrators, contractors is of importance.
- Speeding is a huge problem in work zones.
- Information to the road users should be enhanced.
- Training of employees, accreditation for construction workers to be considered.
- Introduce work zones as a topic in driver education!

After the résumé from the group discussions, an opinion poll was arranged. The findings from the opinion poll are available at

[https://gallery.mailchimp.com/d437b9a44887634523b7f9b83/files/a4b2d439-f6b7-4ecb-99e3-542da4a88e6f/IRIS\\_workshop\\_opinion\\_poll.pdf](https://gallery.mailchimp.com/d437b9a44887634523b7f9b83/files/a4b2d439-f6b7-4ecb-99e3-542da4a88e6f/IRIS_workshop_opinion_poll.pdf)

The workshop was closed with a few concluding word by the coordinator at 13:00.