

# **AFB 20 (2) Roadside Design Safety Subcommittee on International Research Activities**



## **European Summer Workshop**

***Brussels, Belgium April 11, 2013***

# SAFETY OF ROAD WORK ZONES

## CEN/TC226 “FUTURE WORKS” INITIATIVE

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# SAFETY OF ROAD WORK ZONES

## CEN/TC226 “FUTURE WORKS” INITIATIVE

### MAIN OBJECTIVE

produce guidelines for improving the safety of work zones in Europe for both road users and road workers by harmonising the signalling, guidance and safety equipment covered by the CEN/TC226.

# SAFETY OF ROAD WORK ZONES

## CEN/TC226 “FUTURE WORKS” INITIATIVE

### UNDERLYING OBJECTIVES

take away causes for surprise or uncertainty for the road user

(self-explaining work zone)

and foresee safety equipment for reducing harm if things go wrong

(forgiving work zone)

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### SCOPE

covers a wide area of road equipment which is used to alert, guide and protect road users and road workers mainly affecting **roadsides**: vertical signs, horizontal markings, variable message signs, flashlights, beacons, crash cushions, safety barriers...

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### SCOPE

#### Phase

|                        |  |
|------------------------|--|
| Time phase             | •Work zone fully installed and road works operational (Arrows Phase 4 – Operation) |
| Placement of work zone | •Uninterrupted road stretch (i.e. no exits, entries, crossroads, ...)              |

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### SCOPE

#### Road types

|  |  |
|--|--|
| Motorways<br>Highways<br>Dual carriage roads | <ul style="list-style-type: none"><li>• High volume, high speed, multi-lane carriageways (Arrows type A)</li></ul>   |
| Primary roads                                | <ul style="list-style-type: none"><li>• Medium volume, medium speed, urban and rural roads which can include two-wheelers, public transport vehicles (Arrows type B)</li></ul> |

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### SCOPE

#### Road works type

|            |  |
|------------|--|
| Mobile     | <ul style="list-style-type: none"><li>• Continuously moving works, eventually with intermittent stops.</li></ul> ex.: potholes, markings   |
| Short term | <ul style="list-style-type: none"><li>• Stationary works of limited extent and duration.</li></ul> ex.: replacement of damaged RRS   |
| Long term  | <ul style="list-style-type: none"><li>• Stationary works over longer periods with comprehensive logistic aspects (work vehicle traffic), mostly carrying extensive messaging and special measures to maintain traffic flow.</li></ul> ex.: resurfacing |



# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### SCOPE

#### Road works area

|                  |  |
|------------------|--|
| Termination area | •The stretch past the work zone where normal carriageway and traffic conditions are being restored   |
| Activity area    | •The actual work zone, characterized by presence of work force and stabilised altered carriageway conditions   |
| Approach area    | •The zone starting at the first advance warning and where carriageway and traffic conditions are being altered (ex.: speed reduction, lane changes). Ends at the Activity area |

# SAFETY OF WORK ZONE

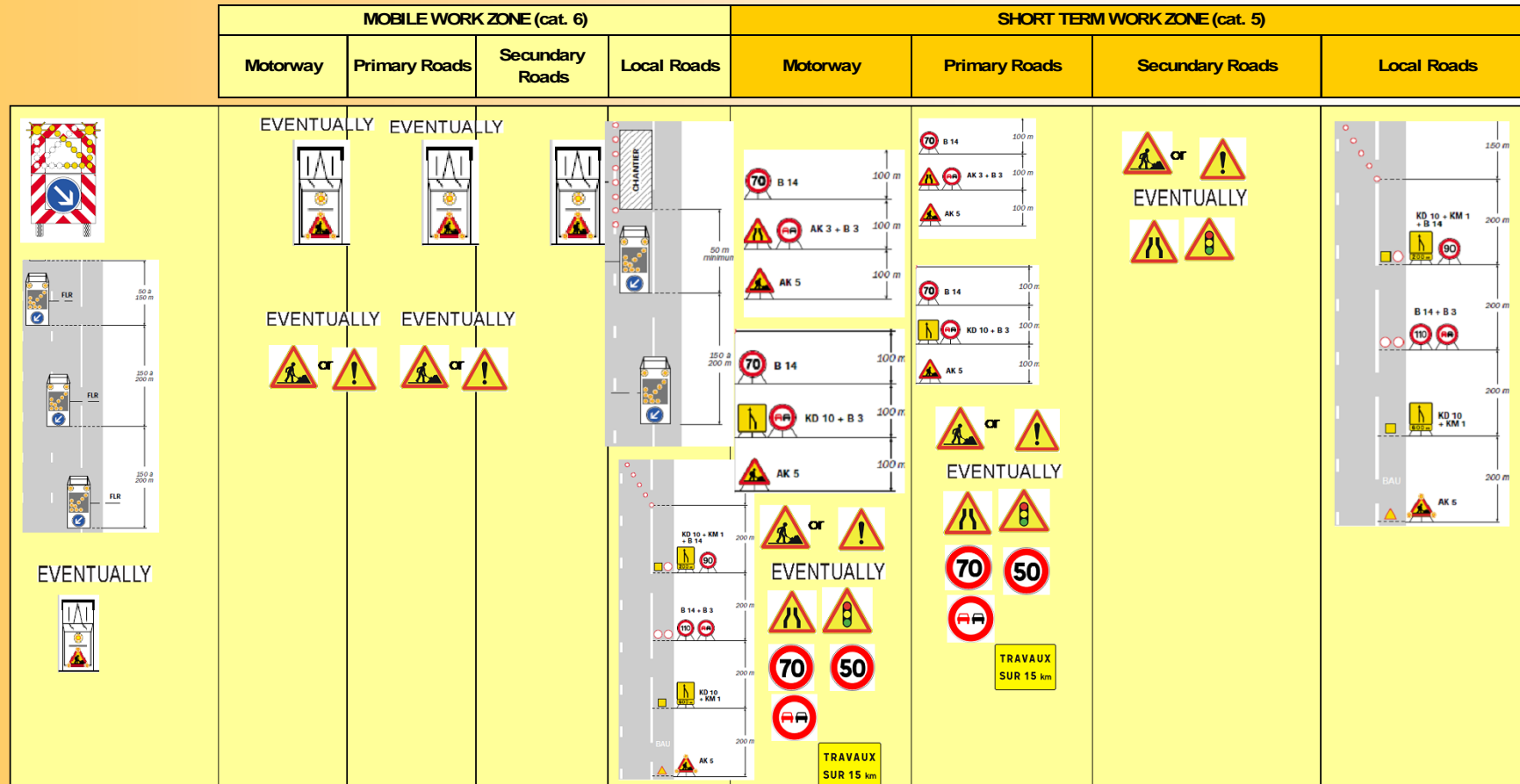
## CEN/TC226 INITIATIVE

### Projected Working Objectives

- Objective 1. To inventory and to compare the different situations (regulations and practices) concerning WZ Safety in the contributing countries (Belgium, Germany, France, Italy, Spain, Austria)

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE



Example of approach to Work Zone in France

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

| MOBILE WORK ZONE  |               |                 |   | SHORT TERM WORK ZONE |               |  |             | LONG TERM WORK ZONE |                        |                          |                      |
|---|---------------|-----------------|---|----------------------|---------------|--|-------------|---------------------|------------------------|--------------------------|----------------------|
| Motorway  | Primary Roads | Secondary Roads | Local Roads   | Motorway             | Primary Roads | Secondary Roads  | Local Roads | Motorway (cat. 1)   | Primary Roads (cat. 1) | Secondary Roads (cat. 2) | Local Roads (cat. 3) |
|   |               |                 |   |                      |               |  |             |                     |                        |                          |                      |
|   |               |                 |   |                      |               |  |             |                     |                        |                          |                      |
| Depends on the type of work and in which part of the road are made.<br>Some examples: |               |                 | Mobile signposting will be use by reasons of safety and speed of installation |                      |               | Any signal that involves a prohibition or obligation must be settled or abandoned before one minute has passed since a driver see it traveling at the speed you have planned. Therefore it is not possible to limit speed during several miles with only one signal, the limitation must be repeated at intervals of one minute and avoid as soon as possible.<br>Some examples: |             |                     |                        |                          |                      |
|   |               |                 |   |                      |               |  |             |                     |                        |                          |                      |
| Yellow or orange Road markings.   |               |                 | Yellow or orange Road markings  |                      |               | Yellow or orange Road markings   |             |                     |                        |                          |                      |
|   |               |                 |   |                      |               | <p>Not be less than 80 Km/h if the number of lanes are reduce.<br/>60Km/h if the number of lanes are reduce and it is establish a provisional line.<br/>40Km/h for vehicles that do not have to stop at an alternative one-way management.</p> <p>Generally in works outside of the road it is not necessary to limit the speed.</p> <p>Some examples:</p>                       |             |                     |                        |                          |                      |

Comparison of Work Zone activity area between Italy and Spain

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

•EXAMPLE

•Table 2.BE/F Regulations on temporary road restraint systems (RRS) for road works

|      |                    |  |
|------|--------------------|--|
| BE/F | Belgium - Flanders | Standaardbestek 250 v.2.2 (2010) Hoofdstuk 8<br>Tender documents (priority)<br>EN 1317 |
|      | Applicable yes/no  | As specified in tender documents   |
|      | Materials          | As specified in tender documents   |
|      | ASI                | max A or B   |
|      | Working width      | Default W2   |
|      | Anchorage allowed  | Default no   |

National specifications per equipment

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### Projected Working Objectives

- Objective 2. To identify key elements for WZ Safety

Put forward the key elements for the work zone safety through the study of the signalling and the protection of the work zones and the comparison between the different countries in Europe, such as for instance

- functional and physical separation between workers and traffic
- preservation of traffic flows,
- clarity in the directives, relevance of the information, ...

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### Projected Working Objectives

- Objective 3. To point out the best practices for the WZ design
- management of the separation between traffic and work zone
- speed management,
- safety zones,
- narrowed lanes,
- lane diversions...

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### Projected Working Objectives

- Objective 4. To recommend performances for the use of road equipment

In close cooperation with TC226 WG and the actual state of the art



# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### Projected Working Objectives

- Objective 5. To provide orientations to ensure safer work zones across Europe in uniform manner, especially on the TEN-T network

# SAFETY OF WORK ZONE

## CEN/TC226 INITIATIVE

### PROGRESS STATUS

4 meetings at ERF Premises (Brussels)

Aug 2012

Nov 2012

Feb 2013

Apr 2013

Presentation at TC226 Meeting (June 2013):

Proposal on a draft guide for safe work zones for the products covered by CEN/TC 226.

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