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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

Working Party on Road Traffic Safety

(Forty-seventh session, 12-15 September 2005,  
agenda item 5 (k))

**REVISION OF THE CONSOLIDATED RESOLUTIONS R.E.1 AND R.E.2**

**Variable message signs (VMS)**

Revised document transmitted by the small group

The Small Group on VMS met in Hanover on 2 June 2005. It prepared a revised version of the document presented at the 46<sup>th</sup> session of the Working Party on Road Traffic Safety. No comments on the first version of the document were received from members of the WP.1 following the 46<sup>th</sup> session. As requested, the small group also considered VMS signs to be used in tunnels, and its findings appear in the annex to this document.

During the discussions, 2 items emerged that were too complex to solve before the 47<sup>th</sup> session of WP.1:

1. The problem of priority rules when VMS signs are used on a road where fixed signs also apply. The same goes for priority rules between VMS signs of separate traffic control systems on the same stretch of road. The small group is willing to work on a suggestion for these priority rules.
2. Lane control systems. VMS signs in lane control systems have a special use in traffic control. The restrictions on VMS (including also speed limits) apply per traffic lane. Currently such VMS are described in the Vienna Convention as traffic lights (Chapter III, article 23.11). Here the reality is already different from the rules, since in many systems, speed limits or speed restrictions per lane are used as a “positive” indication that the lane is free, while this is not covered in this article. The small group thinks a

more fundamental change should be made to give these systems their own place in the Convention.

The small group suggests that it prepares a proposal for the solution of these two problems, and submits a document describing this solution for the 48<sup>th</sup> session (spring 2006).

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[A new article on VMS could be inserted in chapter II (maybe article 20 or 22 could be used) of the 1968 Vienna Convention on Road Signs and Signals.]

### 1. Definition































A Variable Message Sign (VMS) is a sign for the purpose of displaying one of a number of messages that may be changed or switched on or off as required<sup>1</sup> (note: all footnotes appear at the end of the document).

### 2. Colour inversion

[Current article, 8, paragraph 1 bis, of the Vienna Convention on Road Signs and Signals could be placed here.]













### 3. List of recommended Vienna Convention signs for use on VMS

[The small group recommends to extend the meaning of the “cyclists entering or crossing” danger warning sign (A-14) to “cyclists on the road”.]

Regulatory	Danger warning	Informative	
		Tactical	Strategic
<i>Restrictive</i>	A-4a;  A-4b 	G-11 	G-1a 
C-1a 	A-5 	G-12 	G-1b 
C-2 	A-9 	G-17 	G-1c 
C-3e 	A-16 	H-1 	
C-10 	A-17 	H-2 	
C-13aa 	A-23 	H-5 	
C-13ba 	A-24 		
C-14 	A-31 		
C-17 <sup>a</sup> 	A-32 		
C-17d 			
<i>Mandatory</i>			
D-1a 			
D-9 			

### 4. New signs for use on VMS

[Chapter III, article 23, to be added to paragraph 11: “If there is no possibility to show the signals over the traffic lanes, the lane allocation can be shown in one sign.” (see proposal I-1).]


Regulatory	Danger warning	Informative	
		Tactical	Strategic
Mandatory I-1 (lane allocation) 	A-33 (pedestrians)  ii A-34 (slippery road –ice or snow)  iv A-35 (accident)  v A-36 (fog)  vi I-2 (ghost driver)  vii	G-24a, G-24b, G-24c, (hard shoulder use)  viii G-25 (road closed)  ix G-26 (exit closed)  x G-27 (HOV lane)  xi H-10 (snow machine)  xi	G-23 (rerouting) 

[Some definitions for the new signs and corresponding examples follow:]

## Regulatory signs


### Mandatory


I-1. Regulation of lane allocation [as an alternative to “lane signals” above each lane of a carriageway, proposed in the amendment of the Vienna Convention that entered into force on 30 November 1995.]


Example for only left lane open 


Any other combinations of crosses and arrows are allowed, even for roads with more than two lanes.


### Danger warning signs


A-33. Pedestrians on the road 

A-34. Danger of slippery road because of ice or snow 

Another possibility is the combination of A-9 with the additional panel H-9 

A-35. Obstruction due to accident  kii

A-36. Reduced visibility due to fog, rain or snow (see below)  kiii

A-37. Driver coming the wrong way (so-called “ghost driver”)  kiiii

### Informative signs

*Tactical (i.e. VMS messages affecting the same road section)*

G24a-c. Temporary hard shoulder availability or unavailability

- G-24a: Use hard shoulder



- G-24b: Stop using hard shoulder



- G-24c: Clearing of hard shoulder



G-25. Road closed ahead - next exit compulsory



G-26. Next exit closed – proceed



G-27. High occupancy vehicle (HOV) lane available



H-10. Snow-clearing machine operating ahead



*Strategic (i.e. VMS messages affecting other roads)*

G-23. Recommended alternative route (rerouting)



<sup>xvi</sup>

## 5. Relation between road situations and road sign classes for VMS

*From danger warning to informative*

In order to differentiate danger warning signs as much as possible, only these should use the red triangle and should be placed on the spot or nearby the VMS (< 2 km). In order to announce a dangerous situation at some distance (> 2 km) beyond the VMS, informative signs have to be used. The same symbols can be used but in a square, without the red triangle. To make clear the difference between acute danger warning and information on an expected danger at some distance ahead, additional information (e.g. distance) is necessary.

*From additional panels to informative*

Some of the symbols used in additional panels can also be used as informative messages (adapting size to the new dimensions).

## 6. Message content and structure for VMS use

Distinguish between traffic and non-traffic VMS messages.

*Traffic VMS message*

1. When using VMS with pictograms, the main information is given by the pictogram. The use of specific pictograms instead of generic ones (e.g., a pictogram representing “congestion” instead of general danger A-31) is preferred, when they exist.
2. Make use of symbols as much as possible in the text part.
3. Avoid alternating messages.
4. Avoid redundancy, except for the purpose of making drivers familiar with new pictograms.
5. Use only well-known and international abbreviations (e.g., ‘KM’ for kilometre, ‘MIN’ for minutes, etc.).
6. Minimize the number of words and symbols (e.g. maximum 7).
7. Regulatory messages have to be shown without any text (except for supplementary information ‘length’ if necessary).
8. If words are used in danger warning messages, locate the information concerning the prescription or the danger on the first line. Do not give distance and/or length on the second line (it is always nearby < 2 km) and give brief complementary advice on the third line if necessary.
9. If words are used for messages about distant dangerous events (> 2 km), give first the information concerning the nature of the event on the first line, then distance and/or length on the second line, and if useful, complementary information (e.g. advice, cause) on the third line.
10. In case of strategic rerouting at a network decision point, it can be useful to separate direction-related traffic information from the route recommendation. Two separate or alternate panels - one with length, nature of the hazard and location, the other with the diverted destination and route recommendation - are possible.


#### *Non-traffic VMS messages*

Non-traffic messages can be divided into neutral messages, general safety messages and other messages.

11. Usually – in case of no necessary traffic message - message boards should be blank.
12. Neutral messages (e.g. dots, time, temperature) are used to indicate that the VMS is working, but there is no specific traffic message "on"; if considered necessary, it should be very short, and displayed in a way that it will not be confused with any real traffic indication (e.g., locating it at random on the text side).
13. General safety messages (road safety advertisements - e.g. safety campaigns) are generally not recommended, as they could incite drivers not to pay attention to real traffic messages. When used, they should be clearly connected to a temporary general safety campaign. In any case, pictograms should not be used with non-traffic messages

14. Other messages, e.g. commercial/advertising are excluded.

### End notes

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- i Definition used by CENTRICO.
- ii Spanish design (based on traffic lights - crosses and arrows); already implemented.
- iii Sign already implemented in some national road codes (e.g., Dutch, Spanish).
- iv Project COST 30 BIS (1985).
- v Project COST 30 BIS (1985).
- vi Project TROPIC (1998).
- vii Project TROPIC – British design (1998).
- viii G-24 a, b, c: German design; pictogram already implemented in Germany and the Netherlands.
- ix Italian design (after VMS WHITE BOOK, 1991), also adopted by France.
- x French design.
- xi Italian design - supplementary plaque for snow clearing machine.
- xii Project COST30 BIS (1985). Other possibilities have been tested (namely, the TROPIC Project pictogram ) but the proposed seems at the moment the most technically feasible one.
- xiii The TROPIC Project tested this alternative that was found to be the best one for bad visibility in general.
- xiv For the moment, there is not a better design. The recommendation is using text beside or below the pictogram (“oncoming vehicle, drive carefully”).
- xv This HOV lane pictogram indicates that a special lane is open for vehicles with two “2 or more” passengers; the use of the lane can be made more restrictive just by indicating on the sign (e.g., 3 +, 4+... passengers per vehicle or BUS).
- xvi The black and yellow arrow was designed within the SERTI Project. This shape has been chosen in order to avoid confusion between this diversion indication and arrow shapes used in direction signing and route recommendations on VMS. This sign is intended to be used in three directions: left, right and upward. Note the similarity of both the SERTI sign and the COST 30 BIS arrow (currently used in Germany) approaching both function and design in a more harmonious way.

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Annex

**The Small Group on VMS view concerning the VMS presented in the “Recommendations of the Group of Experts on Safety in Road Tunnels” document (TRANS/AC.7/9).**

The Small Group on VMS agrees on the following pictograms presented by the Group of Experts on safety in tunnels.

1. Regulatory traffic signals (already existing in the 1968 Vienna Convention – Chapter III “Traffic Light Signals”, Article 23, points 11 and 12).
2. *Fire in a vehicle*. The idea is good and the pictogram too, but it should be shown within a red triangle. No grey and no line on the ground.

However, the Small Group on VMS does not agree with the following recommendations:

1. *Breakdown sign*. The meaning of F2, used here as an additional panel (“car breakdown”), is different to the meaning described in the 1968 Vienna Convention (“breakdown services”). We suggest introducing a new sign that reflects more clearly and specifically the problem – warning of a car breakdown.



2. *Accident*. The problem of road accident has been widely treated within the VMS context since the mid-1980s. The alternatives proposed by the Small Group on VMS for accident (see A-35) have been tested and have been introduced and used in some national codes already. The sign is bigger and it is inscribed within a red triangle. The pictogram proposed by the tunnel document is hard to understand and resembles more a supplementary plate (i.e. even smaller and more confusing).
3. *Switch on hazard warning lights*. Not acceptable. It should be a mandatory sign (p. 44). Design should be improved.
4. *Switch off the engine*. Not acceptable (basically for the same reasons).

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