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Item 7 of the provisional agenda

Convention on Road Signs and Signals (1968)

Proposal on Variable Message Signs

Proposal from Ad hoc Expert Group on Variable Message Sign to the Working Party on Road Traffic Safety

Transmitted by the government of Spain

1. In September, 29th 2011, in its sixty-second session, of the Working Party on Road Traffic Safety requested the ad hoc group on VMS (VMS Unit) to issue a specific proposal in line with the previous action line presented in order to restructure the 1968 Convention so that VMS are appropriately considered.
2. The VMS Unit proposed the following specific changes concerning the issues below:

A. Issue 1 – Need to differentiate between fixed and variable road signs

1.1 Need for a definition on Variable Message Signs

3. The VMS Unit offers two options to facilitate the development of a Variable Message Sign definition:
4. Firstly the VMS Unit believes that the definition detailed in R.E.2 is the considered for adoption, unmodified. This definition is below:

“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”.
5. Alternatively the VMS Unit believes that this definition could be reworded to make align it with the existing VMS text of Article 8 within the Convention”. This modified definition is below:

“A Variable Message Sign (VMS) is a sign for the purpose of displaying one of a number of inscriptions and symbols that may be changed or switched on or off as required”.

6. The group proposes that such a definition should be in Chapter I. General provisions Article 1 Definition..... taking the letter (w).

1.2 Need for a clear status, coordinated implementation and use of fixed vs. variable road signs

7. The VMS Unit recommends the approval and placement of the following sentence:

“Variable Message Signs should only be used for managing temporary events. Issues which require long-term use in a static location should always be shown on permanent (fixed) road signs”.

8. The group proposes that such a definition should be placed in Chapter II. Road signs Article 8. 1. ter...

9. Explanatory reasons for such proposals are detailed in Annex I of this document.

B. Issue 2 – Need to update the role of traffic light signals as road signs within the 1968 Convention

10. Current practice makes use of the crosses and arrows described in the 1968 Convention as “Traffic Light Signals” (Article 23, point 11 a and b) in a variety of cases (e.g. combined with speed limits). The VMS Unit advice is giving crosses and arrows an appropriate status as road signs too within the 1968 Convention, i.e. describing them in Annex 1 and showing them in Annex 3 with its corresponding nomenclature. In principle, as indicated in Article 23, point 11 a and b for traffic lights, crosses and arrows could also blink as road signs (or not) and be either white or yellow.

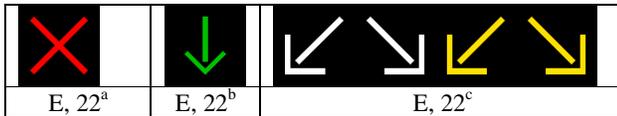
Text for Annex 1:

(E, 22) Sign notifying lane availability;

Three different signs may be used in case of variable assignment of lanes:

- E, 22a: Traffic may not proceed along the lane over which it is placed;
- E, 22b: Traffic may proceed along the lane over which it is placed;
- E, 22c: The lane is about to be closed to traffic and the road users on that lane must move over to the lane indicated by the arrow.

Pictograms for Annex 3:



11. Explanatory reasons for such proposals are detailed in Annex II of this document.

C. Issue 3 – Considerations concerning colour inversion

12. The VMS Unit decided to follow the most “economic” rule, i.e., to leave all examples in the standard colour assignments of Annex 3 (even if probably certain signs are only used on VMS).

13. All signs should then be displayed within the catalogue in the original “natural” fixed sign format. Article 8, 1.bis concerning colour inversions should suffice to indicate other possibilities.

14. The VMS Unit suggests bringing to the WP.1 website an informal catalogue with colour inverted signs. This would help re-designers not to change the original 1968 Catalogue style too much.

D. Issue 4 – Considerations concerning section “5.3.2. Rules for message content and message structure for VMS”

15. Section 5.3.2. “Rules for message content and message structure for VMS”, currently in R.E.2, should move to a specific location within the 1968 Convention. The VMS Unit proposes to include this information in a new article in Chapter II Road signs.

16. Firstly the VMS Unit believes that the wording for the different rules detailed in R.E.2 could be considered for adoption, unmodified. This definition has been placed in the left hand column in the table below.

17. Alternatively the VMS Unit believes that this definition could be slightly reworded to make it clearer. This modified wording, when existing, has been placed in the right hand column.

5.3.2.1. Traffic related VMS messages.

<i>Original</i>	<i>New</i>
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., the pictogram A, 24 representing “congestion” instead of general danger A, 32) is preferred, when they exist.	When used, pictograms should always provide the main unit of information in any VMS message.
2 Make use of graphical elements as much as possible when using text (e.g., pictograms, symbols).	When a VMS has such a capability, graphical elements (pictograms, symbols) should always be used as much as possible to replace the need for text.
3 Use regulatory messages without any text, if possible.	If used, a regulatory pictogram/symbol should not require any supporting text to be clearly understood by road users
4 Danger warning messages (using the red triangle) should only be used when the dangerous spot or stretch of road is nearby the VMS (for instance, no more than 2 km). When using words in danger warning messages, place the information about the nature of the danger first and then brief complementary advice can be given under.	Danger warning messages (using the red triangle) should generally not be used when the dangerous spot or stretch of road is far from the VMS (for instance, more than 5 km). When using words in danger warning messages, place the information about the nature of the danger first and then brief complementary advice can be added.
5 When a VMS is used to inform about a situation at some distance (for instance, 2 km or more) or in the future (e.g. expected road works), additional information (e.g. distance, or respectively an indication of date and time) is necessary. The recommended structure of the message is	When a VMS is used to inform about a situation at some distance (for instance, 5 km or more) or in the future (e.g. expected road works), additional information (e.g. distance, or respectively an indication of date and time) is necessary. The recommended

<i>Original</i>	<i>New</i>
the following: first give the information concerning the nature of the event on the first line, then distance and/or time indication on the second line. A third line can be used for additional information (e.g. advice, cause).	order of the message is the following: 1. Information about the nature of the event. 2. Distance and/or time indication. 3. Additional information (e.g. advice, cause).
6 Avoid alternating messages.	VMS should not display scrolling, alternating or sequential messages.
7 Avoid redundancy, except for the purpose of making drivers familiar with new pictograms.	The meaning of a pictogram, should not also be shown in text in a VMS message, unless required to educate drivers as to the meaning of a new pictogram.
8 Use only well-known and international abbreviations (e.g., 'Km' for kilometre, 'Min' for minutes, etc.).	Use only well-known and international abbreviations (e.g., 'km' for kilometre, 'min' for minutes, etc.).
9 Minimize the number of words and symbols (e.g. maximum seven).	To ensure they are safe for drivers to read, VMS messages should contain no more than 4 units of information.

5.3.2.1. Non-traffic related VMS messages.

<i>Original</i>	<i>New</i>
10 A VMS should be blank when no traffic related messages have to be displayed. An exception could be the display of dots or the time to indicate that the VMS is working.	
11 Commercial/advertising messages are not permitted.	

18. Explanatory reasons for such proposals are detailed in Annex III of this document.

Annex I

Explanatory notes concerning Issue 1 – Need to differentiate between fixed and variable road signs

1. After discussion, the VMS Unit members agree on the convenience of not defining the different signs in the Convention (i.e., road markings, road signs, and traffic signs). Definitions create certain boundaries that then can be difficult to manage.
2. One exception however concerns the definition of VMS themselves. VMS are complex signs that combine and change pictograms, alphanumeric, words, abbreviations, and the like. Fixed signs, once placed, remain there and can be easily subject to criticism (and in fact are). Such signs, equal for all, can even be built up by a unique agency and then distributed. But VMS are so flexible, go on and off, are used by different hands... and some basic structural rules are recommendable because otherwise the “anything goes” can become practice within the different Traffic Control Centers. So, to begin with, if we are to apply certain rules to certain type of road signs, we must define which ones. These rules only apply to VMS actually. And variable signs can be opposed to fixed signs quite clearly.
3. This definition is based on the following rationale. Contrary to the past, in our days the category of what we call “road sign” is not adequately represented just by fixed signs. **Variable Message Signs** are also road signs.
4. One should realise that the specific context in which road signs are presented to drivers has an influence on the driver’s interpretation of such signs and on the subsequent actions taken by them. Two specific contexts are of relevance here due to its direct influence upon road sign comprehension:
 - (a) The referent (reality) represented by the sign itself. One clear example is the danger warning signs concerning wind, congestion or snow, i.e. variable situations. When drivers on a trip to the mountains see fixed signs indicating the possibility of dangerous spots in August, or when they go home and are informed about the possibility of a congested section in a quiet Saturday afternoon, they understand such signs are placed there for other moments and don’t react to them as if it was January or Monday morning. The very same sign has not the same meaning in very different contexts according to the nature of the sign itself;
 - (b) Not all road signs have the same status in terms of the link to present (current, real-time) reality. Fixed signs presented to drivers are not always and exactly interpreted and reacted upon in the same way as road signs presented in variable format. A classic example is the swing bridge danger warning sign. When presented in fixed format, such a sign indicates to drivers that they drive towards a swing bridge that may be open or closed (i.e., may be dangerous or not). When present in variable format, such sign indicates drivers that they drive towards an opened swing bridge, dangerous in real-time.
5. The statement proposed for the new clause 1.ter of Article 8, should prevent from massive VMS use (variable signs “becoming static”), as this practice hinders VMS functionality and effectiveness.

Annex II

Explanatory notes concerning Issue 2 – Need to update the role of traffic light signals as road signs within the 1968 Convention

1. Originally, lane control devices were made as a special sort of traffic light signals, with the use of traffic light lenses. Later, when lane control became more popular, matrix signs (VMS) were used; first with crosses and arrows only, later also using speed limits over the “free” lanes.
2. The use of combinations like these means that crosses and arrows are now legally “traffic lights”, while the signs shown on adjacent lanes are legally “traffic signs”, while in reality we are looking at one system. This is creating two different legal meanings for actually the same signs.
3. In this way, nothing changes in the 1968 Convention, paragraphs don’t move (traffic light signals are still so), but crosses and arrows are also given the status of signs that can then be combined with other signs (as many signs do). Crosses and arrows are, as content, valuable information to combine, full road signs.

Annex III

Explanatory notes concerning Issue 4 – Considerations concerning section “5.3.2. Rules for message content and message structure for VMS”

1. Rule 9. Units of information: a more appropriate term for VMS that can display pictograms, alphanumeric, abbreviations, words...
 2. VMS display pictograms, abstract signs, numbers, words (e.g. descriptors, a toponym) and abbreviations forming information units. An information unit may be described as the answer we obtain for a question that is meaningful to drivers [3, 4]. For example, if I ask to myself “What happens?” or “What should I do?” the first question could be answered with “congestion” or “wind” and the second could be answered with “slow down” or “take exit A-23”. An information unit may be made by one or several words or pictograms. In order to ensure intelligibility, information units are normally placed in the same line on the VMS, thus helping a coherent read.
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