

Assessment of attitudes to variable accident road sign Sweden



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	Name	Organisation Project	Tel:	Email:
Author:	Björn Carselid	Swedish National Road Administration	+46(0)31635109	bjorn.carselid@vv.se

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1. KEY EVALUATION RESULTS

A new variable road sign "Obstruction due to accident" was implemented for use on Dynamic Route Information Panels in Stockholm and Gothenburg. The implementation became operational late spring 2008. Driver attitude surveys were conducted in Stockholm in October 2008 and in Gothenburg one year later. More than 1000 drivers participated.

About 80-90% of the respondents have a fairly good understanding of the meaning of the sign.

A majority of the drivers claim that the accident road sign affects their driving behaviour. In average 68% raise their attention, many are looking for more information and a surprisingly large proportion is trying to take an alternative route, especially in Gothenburg.

More than 90% believe that there is a need for a separate, variable accident road signs. A similar proportion thinks it is very or quite important to use an accident pictogram which also foreign motorists can understand.

The majority (67%) prefer a message design which include the accident road sign instead of the traditional sign 'Other danger'. One of four participants stressed the need for better location information on the DRIP:s.

2. DESCRIPTION OF THE PROBLEM

2.1 SITE

VMS (variable road signs) are used in a bigger extent in order to give the road users current information about traffic situation and events of temporary nature on the nearby road network. In recent year several DRIP:s (dynamic road information panel) have been installed, particularly in the large town areas. These have message surfaces for free text and incorporated variable road signs. The most common type of DRIP has a possibility to show a road sign module to the left and three rows for text with 20 characters each. This formulation is also applied in many places in Europe.

There are Swedish instructions for messages on DRIP:s based on recommendations from WERD/DERD (the European road authorities' collaboration organization) which later have been taken over by a UN organization. The instructions state among other things that messages will be presented by using road signs when possible. In Sweden, different variable road signs are used. These include "road work", "risk for queue", "tilting bridge", "slippery road" and "strong wind". However the most used road sign is "danger" which is displayed in connection with more or less all types of unscheduled events. The lines of text are used in order to describe the event, the place and the possible consequences.

Several Swedish studies (Vägverket, 2006) points out that the road users have difficulties in understanding expressions that give unclear information on how they will be influenced (using words such as obstacles or limited trafficability), or the place where the event has occurred. Especially the location can be difficult to understand by many drivers. More space on the DRIP is needed in order to provide a better description of the location than what is possible today. This can be obtained through the introduction of variable road signs that clarifies which type of event has occurred. An "accident road sign" are in line with this endeavor.

In several European countries, a variable accident road sign are used on DRIP:s. In most countries the sign shows an illustration of a car lying on the side, seen from behind or from the front. This pictogram has among others been supported by the ES4 European Study4 (Mare Nostrum) and presented within the EU project Easyway. Also within the UN Organization: Economic Commission for Europe there is a group preparing the bases for decisions about road signs and signals. In such a document, (ECE/TRANCE/WP.1/2005/6/Rev.2) from January 2006 there is a list of road signs according to the Vienna convention that can be displayed on VMS and which new road signs that are suggested to be introduced for use on VMS:s. Among the new warning brands is included "Obstruction due to accident".

2.2 ISSUES ADDRESSED

Issues to be addressed during the full scale tests are whether it is possible to communicate with the road users with the aid of road sign symbols in a larger scale than was done earlier. Will it be suitable for the Swedish Road Administration, to use the road sign "Obstruction due to accident" on DRIP:s aiming at creating better understanding for the road users?

3. DESCRIPTION OF THE ITS PROJECT

3.1 PROJECT DOMAIN

The overall objective is to show if the use of the road sign "Obstruction due to accident" can contribute to better understanding among the road users and if the road sign "Obstruction due to accident" is self explainable for the road users?

The project domain is:

- Traveller Information Services

3.2 STATUS OF THE PROJECT

The road sign "Obstruction due to accident" has been implemented in the databases that are used for traffic messages on the DRIP's. The road sign is used in normal operation and displayed together with the additional text "Olycka" ("accident").

Two assessments of road users attitudes where carried out in Stockholm and Gothenburg respectively.

The results of the two assessments are presented in a final report.

4. EVALUATION PLANNED

4.1 TIMING AND TYPE OF EVALUATION

The implementation of the road sign was made in spring 2008 in the greater Stockholm and the greater Gothenburg area,

User attitude surveys were carried out in Stockholm 2008 and in Gothenburg 2009 (Vägverket, 2010). The survey method was post enquiries, which made it possible to show and test alternative illustrations of the designs for DRIPS including the sign with accident pictogram to the respondents.

4.2 OBJECTIVES FOR THE EVALUATION

The evaluation objectives are to clarify the road users attitudes and comprehension to a new variable pictogram illustrating "Road accident".

4.3 RESEARCH QUESTIONS

For the Road Administration it is of interest to find out whether to use of the road sign "Obstruction due to accident" on DRIP's will facilitate the driver's understanding of the situation and thus in a better way communicate with the drivers.

Some questions of interest:

- Have the car drivers noticed the pictogram?
- How do the drivers interpret the pictogram?
- How does it influence the driving behaviour?
- Are incidents easier to understand?

4.4 STUDY AREA FOR THE EVALUATION

The evaluations were carried out among road users in the two urban areas, Stockholm and Gothenburg. Questionnaires were distributed to ~1000 persons in each of the two cities. The responders were selected through license plate registrations of passing vehicles. A total amount of ~500 answers was received in each city which means more the 1000 all together. This evaluation process was carried out in October 2008 in Stockholm and one year later in Gothenburg.

4.5 EXPECTED IMPACTS

The evaluation will hopefully demonstrate that the road users understand and accept the use of the new road sign "Obstruction due to accident" on the DRIP-presentation and thereby justify a continuing use of the new sign. It will also strengthen the efforts to provide traffic messages of better quality.

5. THE IMPACT OF THE PROJECT – RESULTS

5.1 RESULTS

Only about 30% of the respondents say they have ever seen the activated sign. A reason for this might be that the sign is not noticeable and therefore not remembered. An explanation could also be that the majority of the drivers did not actually pass by a traffic information board when the road sign was activated.

A clear majority (80-90%) have a fairly accurate idea of what the sign means. This shows that the understanding of the meaning of the sign is high.

A majority of the drivers claim that the accident road sign affects their driving behaviour. Most of them (75% in Stockholm and 62% in Gothenburg) raise their attention, many try to get more information and a surprisingly large proportion is trying to take an alternative route, especially in the Gothenburg study where there are access to a good alternatives.

More than 90% believe that there is a need for a separate, variable accident road signs. A similar proportion thinks it is very or quite important to use an accident pictogram which also foreign motorists can understand.

The majority (67%) prefer a message design with which include the accident road sign instead of the traditional sign 'Other danger'. One of four participants stressed the need for better location information on the DRIP:s.

5.1.1 Recommendation

The results of the two studies are fairly uniform. They clearly show that drivers have a positive attitude towards the tested road sign "Obstruction due to accident". The comprehension is high and a large majority believes that there is a need for such a traffic sign. The study thus provides support for making the the road sign permanent.

REFERENCES

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