

Special Working Group 3: Rerouting sign



CENTRICO proposal on Rerouting Signing

Summary

The Euro-regional project CENTRICO aims to harmonise the implementation of road-telematics.

The area covers Belgium, Luxembourg, North-East France, three German Bundesländer and the southern part of the Netherlands, where several cross-border corridors/ traffic management plans are identified on the TERN (Trans-European Road Network).

Considering the very nature of the CENTRICO area (density of the motorway network, multiplicity of border crossings on a same itinerary), the question of a common rerouting signalling is more crucial here than in other Euro-regional projects such as SERTI or ARTS.

It is the reason why the CENTRICO consortium has installed at the end of 1998 a special working group aiming at consensus building in the domain of rerouting signalling.

Based on the framework provided by the FIVE-project (WERD, 1997-1998) the special working group agreed on a common approach concerning the text strategy for rerouting advice, by means of VMS, including a newly developed rerouting sign. It is important to note that both can be implemented easily on existing installations. The final outcome was agreed by the CENTRICO members at their latest board meeting (June 10th, 1999), and the SWG is now aiming at a larger basis in order to have a common sign and text strategy realised throughout Europe.

The consensus as well as the proceedings in order to reach it are presented hereafter.

The CENTRICO proposal for cross-border rerouting signalling A common symbol for rerouting

The newly developed sign called “an inverted arrow” is incorporated in a square.

- In case of static or semi-static signalling, using static or VMS-panels with prisms, it is a yellow sign on a black background (Figure 6.1);
- In case of dynamic signalling, using a black VMS-panel with LEDs, it is black on a yellow background (Figure 6.2);

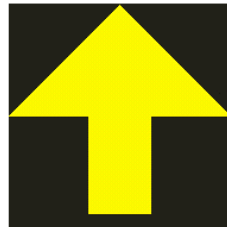


Figure 6.1

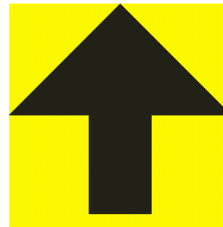


Figure 6.2

The proposed sign matches all of the encountered requirements and presents the following characteristics:

- A directional function (the point of the arrow is indicating the direction to follow);
- The occupied space is independent of its orientation, so the arrow can be rotated in any direction without requiring more space on VMS-panels since the arrow is incorporated into a square;
- When using LEDs, the inverted sign offers:
 - A very good graphical resolution, since the arrow only consists of 45° or 90° corners -which benefits the readability of the messages;
- A correct, non-blinding intensity.

Text strategy at decision points using VMS

Following the recommendations of the FIVE final report for standard VMS using LEDs, three information elements must be displayed when giving an informative message (see the diagram below) :

network	link	information	example – rerouting advice
1	nature	location of the incident	E19 exit 4
2	location/info	nature of the problem	incident
3	info	advice	Breda via A12

The SWG has worked out the following recommendations:

- The location of the incident causing the rerouting should be displayed upon the first alphanumeric line using the road number of the concerned motorway, possibly completed - for regional drivers - by details like a place name or an exit number;
- The recommended alternative route should be indicated on the last line, using the common symbol for rerouting, the word “via” and the number of the road number to the destination or a town (but only when this town is indicated on the static signals);
- The nature of the incident is preferably shown (1) as a pictogram on the left side of the VMS, (2) using the second alphanumeric line or (3) -especially when the VMS has only two lines- using the first line, but after the location of the incident, see Figure 6.3.

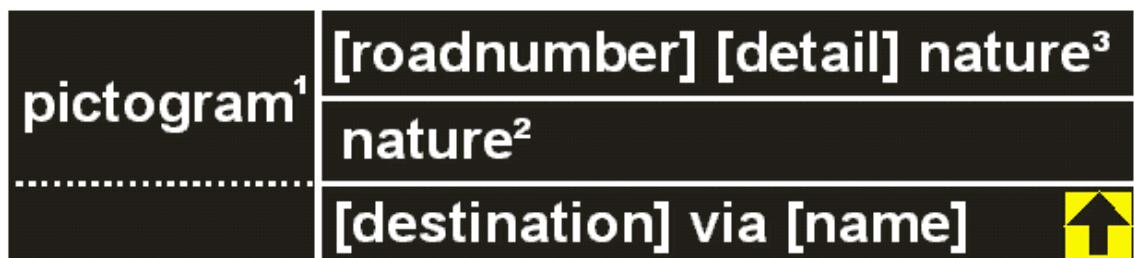


Figure 6.3: Example of message structure in the VMS

The advantages of the approach are:

- The most important part of the message (the advice) is fully concentrated on one (the last) line;
- No misunderstandings (the name of the end destination is featured only once);
- The road manager can decide for himself what information to add for the local drivers.

Application of the proposal
France: combined VMS & semi-static signalling

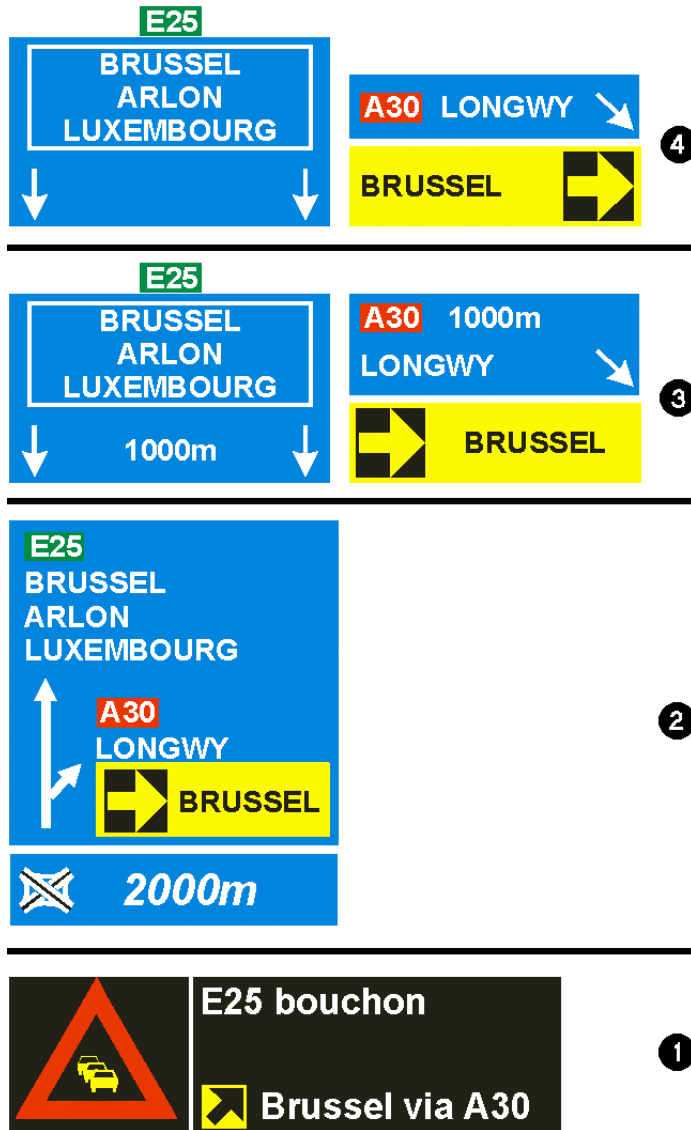


Figure 6.4: Rerouting signalling in France

Germany: semi-static signalling with prisms

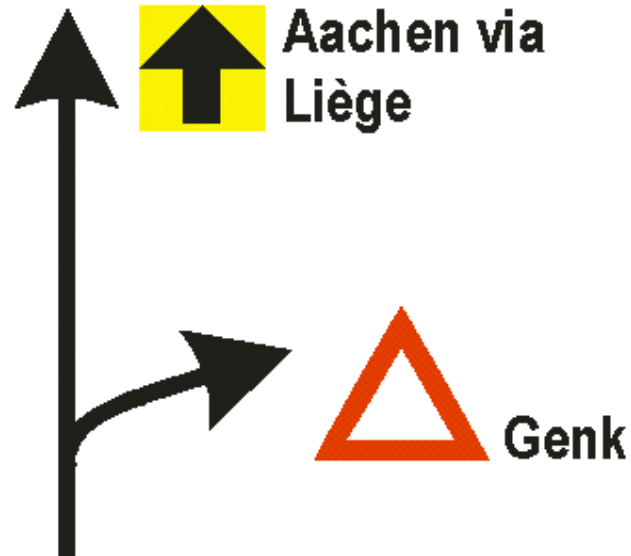


Figure 6.5: Rerouting signalling in Germany

Flanders: rerouting advice using textcars
(mobile VMS-installations with 2.40m x 1.80m LED display)



Figure 6.6: Rerouting signalling in Flanders

Genesis of the CENTRICO proposal

Existing documents

The SWG started on the following available documents:

- Temporary conclusions of Action n°6 "Road signalling Harmonisation" led by Mr Jacques Nouvier from CETE de Lyon in the framework of the Euro-regional project SERTI (March 1998);
- Recommendations from Action FIVE - Framework for harmonised Implementation of Variable message signs in Europe - of the Western Europe Road Directors (23 March 1998).

The SWG has considered rerouting situations caused by incidents affecting flow conditions on a main road. The mandatory deviations due to complete closure of the road have not been taken in account.

The signalling structure proposed by the SWG is for information purposes only: the driver has to decide himself whether to take the alternative road proposed by the traffic manager, although the traffic manager highly recommends that drivers take the proposed alternative road, which should have almost the same level of quality as the main road.

The successive proposals regarding a rerouting symbol

The SWG started with the symbol proposed by COST 30 Bis.

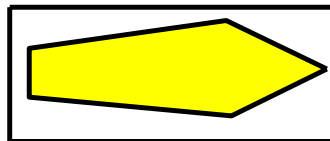


Figure 6.7: Rerouting symbol proposed by COST 30 Bis

Due to its obvious directional function, two major problems were encountered:

- It seemed quite impossible to integrate the sign correctly when displayed in a vertical way (when the alternative road is straight ahead instead of leaving the so far followed road);
- When displaying it on LED panels, the light intensity was far too high.

In order to counteract these handicaps, the "bishop hat" proposed by the Euro-regional project SERTI has been examined.

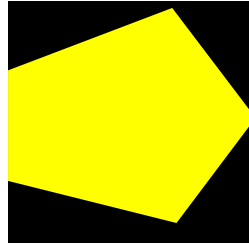


Figure 6.8: Symbol proposed by SERTI

Unfortunately, field trials have led to abandoning this symbol due to the impossibility to give directional information. This is the case because displaying this symbol on a VMS-panel using LED's lacks clearness. In fact, the symbol looks more like a circle. In this respect, the "inverted arrow" below (also drawn into a square) seems to be the preferred solution and has therefore been proposed by the SWG.



Figure 6.9: Symbol proposed by CENTRICO-SWG

Rerouting corridor Antwerp-Rotterdam

Since the end of 1998, a cross border rerouting project was initiated (CENTRICO activity domain B 'operational network and rerouting') between the city of Antwerp in the northern part of Belgium and the city of Rotterdam in the western part of the Netherlands. Both cities are at the heart of the European harbour activities and are subject to heavy morning and evening congestion problems. There is also much road-bound transport between the cities over a fairly extended motorway network.

Current status

Road network

On the Flemish side, several decision points were selected on the Antwerp Ringroad:

- 'Antwerpen-West' for drivers coming from Gent, Paris and Calais (E17);
- 'Antwerpen-Zuid' for drivers coming from Brussels (E19);
- 'Antwerpen Oosterveld' for drivers coming from Brussels (A12);
- 'Antwerpen Noord' for drivers coming from Breda (E19);
- 'Antwerpen Haven' for drivers coming from Bergen op Zoom (A12).

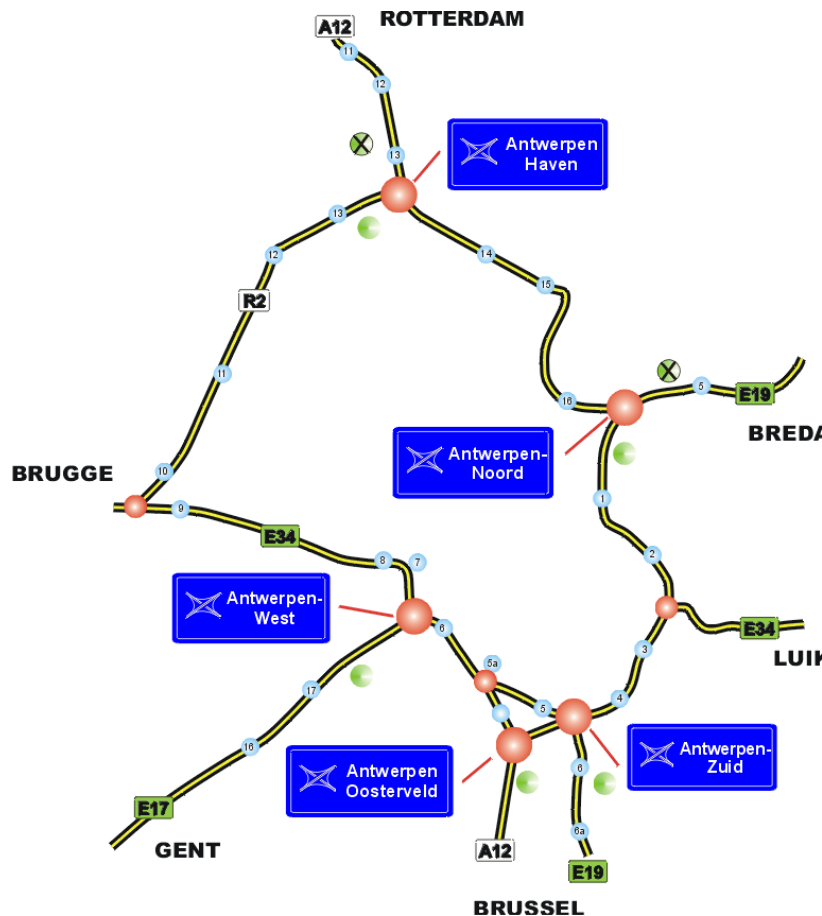


Figure 6.10: Location of decision points on the Antwerp Ringroad

At decision points a) and b) drivers will be advised to follow the Antwerp clockwise or counter-clockwise, depending on the traffic situation on the E19 and A12/A17 north of Antwerp.

As an extension, drivers will be advised at all decision points, depending on the traffic situation on the whole Antwerp Ringroad, to travel clockwise or counter-clockwise.

Resources

In the summer of 1999, an elementary rerouting service will be operational. By the end of the year, the service will be fully operational with advises based on both incidents and roadworks.

On the Dutch side, the motorway junction 'Klaverpolder' was selected as the decision point. At this point the A16 coming from Rotterdam is split up into the A17 to Bergen-Op-Zoom and the A16 continuing to Breda. At the Dutch decision point at Klaverpolder, a DRIP (dynamic route information panel) is already installed and operational. The unicolour alphanumeric display has two lines and will incorporate the rerouting sign.

At the Flemish decision points, up to ten textcars are available. Textcars are mobile VMS units, equipped with a display area measuring 2.40m by 1.80m. Basically, the VMS is unicolour (amber) but is bicolour (amber and red) at the top of the display area. In this way, pictograms can be displayed according the recommendations of the Geneva convention COST 30.



Figure 6.11: Textcars

The first Flemish large-scale experiments with textcars have been carried out in June 1999, when the Kennedytunnel (130.000 vehicles/day) was partly closed for heavy maintenance purposes. Results are currently being evaluated. It is expected that field-trials of the cross border rerouting service will start in the summer of 1999.

Text strategy & implementation of the proposal (example)

Case: disturbance of normal traffic flow on the E19 between Breda and Antwerp. The messages (Flemish side) on the textcars, most notably the numbers "1" as shown on the Figure are referring to the permanent static signals on the Antwerp Ringroad, where "1" indicates the clockwise direction on the Ringroad and "2" indicates the counter-clockwise direction.

The message (Dutch side) on the DRIP at Klaverpolder also refers to the static signing.

In both cases, the rerouting advice is located at the lower part of the display.

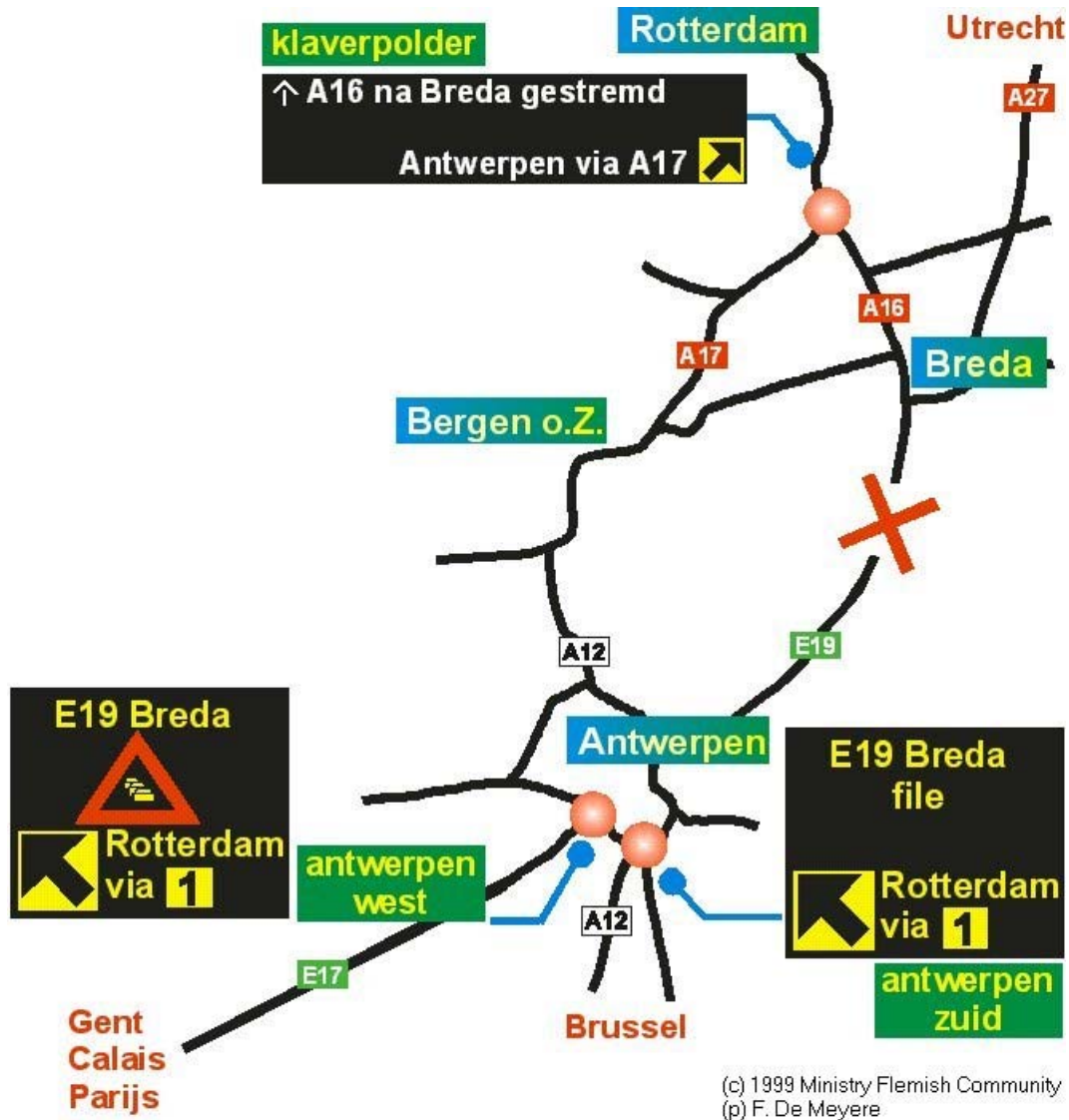


Figure 6.12: Example text strategy

References :

- WERD/DERD Action FIVE - framework for harmonised implementation of VMS in Europe (23 March 1998);
- SERTI Action n° 6 - Road signing harmonisation - Jacques Nouvier, CETE de Lyon;
- CENTRICO Special Working Group on Rerouting Signing - Minutes of the meetings conducted by Mr Eric Kenis from the Ministerie van de Vlaamse Gemeenschap, department Leefmilieu en Infrastructuur (December 98 – June 99).