

## Feasibility study AEBS trigger for road service areas (and railroad crossings)

Submitted by The Netherlands

Dear Members of the IWG AEBS-HDV

Rijkswaterstaat, the road authority of the Netherlands, likes to present the outcome of the feasibility study executed by TNO to the AEBS working group and would like to express her gratitude to the experts that participated in the workshop. It is clear that to improve the present safety situation of both road workers and road users the involvement of the automotive industry is essential.

Rijkswaterstaat will share the results with the European Road Directors united in CEDR. We will ask the CEDR members to work out the most promising option together with the automotive industry. The report has investigated the feasibility of four different options which we will shortly address below.

1. The use of extra radar reflectors on roadworks equipment to ensure and enlarge the radar reflection with the aim to trigger the AEBS intervention when this equipment is in the lane of the vehicle.
2. Creating a standardized stand-alone object that will trigger the AEBS and warn drivers in the obstructed lane for incident management and road works. This option is seen as the most effective and feasible on the mid and longer term.
3. Technological developments of the Object Event Detection and Recognition that will improve the detection and awareness of the vehicle in its environment and from that also acts on obstruction in the lane caused by road works.  
Uniformity of the design of warnings signs and objects used by incident management and road works might reduce the introduction time of this solution.
4. The use of communication between road infrastructure and vehicles. Rijkswaterstaat supports this as a very promising longer term solution and will continue to strive for the introduction of this technology and make this available on their roadworks equipment.

The solution 1) was considered undesirable by a number of participants since this would disfigure the true reflection of the objects. For the future implementation of the solution mentioned in 3), this would create an disturbance of the recognition. This particular problem might need some further consideration.

The solutions under 3) is likely a development that will follow (or just advances on) the stepwise introduction of automated functions in vehicles.

The solution mentioned under 4) is based on communication. A standard for this communication is already available (C-ITS / ETSI). The introduction of the communication is not yet widely established, both in vehicles and on infrastructure) and it is intended for information providing and not so much for emergency brake actions.

As a proposal for next steps we would ask the IWG to consider the possibilities for the introduction of solution 2 and combine this with a marker for the detection of closed railway barriers.

Attachment: This letter accompanies the document *TNO-2021-R11992\_final v3.pdf*