EUSight

European Sight Distances in perspective

Research project funded under the CEDR Transnational Road Research Programme
CEDR Call 2013: Safety - Sight Stopping Distance

CEDR Call 2013: Safety is a Transnational Road Research Programme organised by CEDR (Conference of European Directors of Roads). The funding partners for this programme are Germany, Ireland, Netherlands and UK.

Details	
Acronym:	EUSight
Start:	April 2014
End:	July 2015
Budget:	EUR221.9k
Co-ordinator:	Niels Beenker, ARCADIS, NL
Contact:	niels.beenker@arcadis.nl
Partners:	SWOV, Netherlands
	TRL, UK
	TNO, Netherlands
	Prof. R. Weber, Germany
PEB Project Manager:	Gerald Uittenbogerd, Netherlands, gerald.uittenbogerd@rws.nl
Website:	www.eusight.nl

Project Summary:
In the process of a road design, sight distances are of great importance for traffic flow and traffic safety. Adequate sight distance is needed to enable drivers to adapt speed to the alignment of the road, stop in front of a stationary obstacle, safely overtake a slower vehicle on a carriageway with two way traffic, comfortably merge with (or cross) traffic at an intersection and process roadside information on traffic signs.

The objective of this CEDR-research is to conduct a detailed examination of the subject of stopping sight distance (SSD) and its role and impact on highway geometric design, taking into account differences (and similarities) between EU Member States. This research considers stopping sight distance from different (related) approaches: human factors ('the driver'), road characteristics, vehicle characteristics and conditions (like wet conditions, darkness or tunnels). Since SSD is related to many different aspects, we need multiple approaches and methodologies to determine state-of-the-art parameter values.

We start the research with a literature study; we will study recent road design guidelines from the EU Member States, human factor research concerning sight distances, traffic safety studies in relation to sight distances, pavement research and international highway geometric design symposia publications (TRB, TRA, etc.).

From the results of the literature study, we will build a conceptual model of stopping sight distance (SSD), sight distance (SD) and orientation sight distance (OSD). In these models, all relations between the parameters are defined. These models will take into account the different internal and external conditions. The conceptual models will be used to determine the prevalent conditions for stopping sight distances.

Next, we will carry out a parameter study to determine the representative parameters values for the various sight distance related aspects. We will take into account the actual distribution of parameter values in the EU Member States, developments and the impact of parameter value changes on road design elements and infrastructural costs.

Because sight distance is related to human factors, measuring speed and deceleration behaviour on the road is a major part of our approach. We will use a smartphone app to collect driving data in a selection of EU Member States; we will investigate driving behaviour at road sections with sight limitations and deceleration rates in situations where drivers have to stop for a queue.

In the last step, all results from the previous studies will be brought together to determine the representative parameter values. In an ideal situation, there will be one definition and set of parameter values for the entire EU. However, the differences in characteristics between the EU Member States should be regarded; the outcome of this research must be applicable for each Member State. This means that the parameter values must consider different rules and regulations of individual countries. However, the definition and the parameters can be uniform. In this way, based on an overview of all relevant rules and regulations this research will point out both the relevance of different parameters. It will also determine the impact of the variation of different parameters on the SSD and geometric road design elements (horizontal and vertical radii) and resulting infrastructure costs, distinguishing different geographical conditions. Thus, this research will contribute to traffic safety in the EU.