



## Recognizability of road categories

# What improvements are possible?

**Road markings and separation of driving directions can help road users in recognizing road categories. But information about what the road layout is intended to convey is also very important. This conclusion can be found in the recent SWOV report *Recognizability of transitions between road categories*.**

Recognizability of roads refers to the extent to which the function of a road is recognized as such by road users. Correct recognition raises the correct expectations, which can make the traffic behaviour more predictable, and can therefore contribute to road safety. Road layout plays an important role here. SWOV has carried out a number of studies into the recognizability of roads and, more specifically, into the recognizability of transitions between road categories.

### Photographs

In a first study the present layout variants according to the Dutch Guideline Essential Characteristics were presented to the participants of the study in series of photographs. Each of the series contained five photographs of a transition: the first two photographs showed the first road, then followed one of an intersection and

two photographs of the second road. The road layout of the first and the second road differed in road markings and separation of driving directions. To find out whether providing information about the meaning of essential characteristics can improve recognizability of transitions, half of the subjects first received information about the meaning of the markings according to the essential characteristics guidelines, the other half did not. Although a difference in edge markings is the only characteristic which distinguishes through roads from distributor roads, the presence of the green markings and the physical separation of driving directions appear to be more important characteristics for noticing the transition between through roads and distributor roads. The green marking appears to be the most distinguishing characteristic, provided that the road user is informed about its meaning. Extra informa-

tion contributes to a better recognizability of transitions.

### Animated films

The second study used 16 animated clips, each showing a transition from one road category to another. The clips were taken from the perspective of a car driver who drives along a road of one category, turns right at an intersection and follows a road of a different category. After each film, the subjects were asked to answer questions about the speed limit and the type of road users they expect on the road before the intersection and the road after the intersection. The type of transition, the type of intersection, and the type of road section were varied, and, in addition, half of the subjects were only shown transitions from a higher order road to a lower order road (from a through road to a distributor road or from a distributor road to an access road), and the other half only saw transitions from a lower order road to a higher order road (from an access road to a distributor road or from a distributor road to a through road). The recognizability of transitions between

through roads and distributor roads was found to be improved considerably by both a grade separated intersection and green markings. It is unwise to omit the green road markings, because this leaves too little distinction between a through road and a distributor road. From a road safety point of view a physical separation of driving directions is even better than green markings.

The transition between an access road and a distributor road is recognized reasonably well. The application of unique intersections (priority intersections instead of roundabouts) can help to somewhat increase recognizability but from a road safety point of view a roundabout is a better option than a priority junction. Also not applying edge markings on the access road can help to make the transition extra recogniz-

able. Again, from a road safety perspective a layout with edge markings is preferable even if it is somewhat less recognizable. The fact is, an edge marking can improve safety during darkness or poor visibility by providing some cues about the road course. It must be noted, however, that it would be wrong to choose a demonstrably less safe road layout for the sake of recognizability.

### **Not just road layout**

Information has been found to play an important role in recognizing transitions. Familiarity with a certain road type, or having received information about it, improves the recognizability of a transition. Because people make errors in recognizing certain road categories, this deserves more attention in the communication about road layout aimed at road users.

### **The following SWOV reports have been published about recognizability:**

J. Mesken et al. (2010) [Recognizability of transitions between road categories; The role of road markings and intersection types](#). R-2010-27.

R. Brouwer et al. (2008) [Recognizability of category transitions in infrastructural design; Literature study of the guidelines and knowledge concerning category transitions, particularly those on intersections](#). R-2008-9.

L. Aarts & R. Davidse. (2006) [Recognizable layout of roads; Final report of the predictability projects in SWOV's 2003-2006 research programme](#). R-2006-18.

L. Aarts et al. (2006) [Recognizable road design and driving behaviour; A driving simulator study of the recognizability of rural distributor roads](#). R-2006-17.