

What is a built-up area? The appreciation of drivers

*Frank J.J.M. Steyvers and Jos H. Vrieling
Experimental and Work Psychology
University of Groningen
The Netherlands*

Abstract

Official Dutch recommendations define a built-up area as having a minimum building density of 30% two-sided (i.e. on both sides of the road) and 50% one-sided. Drivers are expected to correctly detect the status of the driving environment in order to follow appropriate rules. This study investigated the influence of building density, the presence of pavement and the distance of buildings to the edge of the road on the perception of being in- or outside a built-up area. Computer-manipulated slides that combined variations of these characteristics were rated according to whether or not they represented a built-up area. Participants also indicated how confident they were of their answers. The results showed that even with a building density of 50% two-sided, only about 65% of the participants rated the areas as built up, and the ratings at this building density were made with the lowest confidence. With pavement present more participants rated the environment as a built-up area. Increasing the distance between buildings and the edge of the street hardly led to fewer classifications of the area as built up. These findings show a discrepancy between perceptions of ordinary road users and the recommendations of the road maintenance authorities, and this incompatibility between legal en perceived built-up status may induce traffic rule violations and hence accidents.

Introduction

For safe traffic participation it is required that a driver (m/f) keeps a constant and regularly updated awareness of the situation in mind. Part of this situation awareness consist of the status of the road environment, since this environment determines what kind of situations and road users to expect, and what rules apply. Being inside or outside a built-up area makes a significant difference for speed choice, the nature of the interaction with others, and the situations that one can expect to encounter. Therefore it would be helpful if authorities would apply a uniform and well-recognisable decision policy with regard to which road environment constitutes a built-up area and which does not.

In the Netherlands local community authorities are charged with the decision for calling an environment a built-up area . They are provided with - recently renewed - recommendations in the ‘Handbook Road Design’ (CROW, 2002). This Handbook enumerates the following set of - rather vague - characteristics:

In D. de Waard, K.A. Brookhuis, S.M. Sommer, and W.B. Verwey (2003), *Human Factors in the Age of Virtual Reality* (pp. 315 - 324). Maastricht, the Netherlands: Shaker Publishing.