Macrocategoria: Geometria e Sicurezza.

Titolo articolo: Effects of Traffic Control Devices on Rural Curve Lateral Position.

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Abstract: This study investigated, by means of a dynamic driving simulator experiment, road users' behavior inside the curves of rural two-lane highways related to different advance warning signs, perceptual measures, and delineation treatments. These treatments were intended to warn drivers of the presence of low radius curves and to affect their behavior, improving vehicle control and lane-keeping. Five surrogate measures of safety were used in the evaluation of the design alternatives in relation to lateral position performance: standard deviation of lateral position, maximum encroachment in the shoulder, maximum encroachment in the opposite lane, relative length of shoulder encroachment, and relative length of opposite lane encroachment. Statistical tests were performed to verify whether the surrogate measures of safety were significantly different between alternatives. The analysis was divided into three phases. In the first phase, all the measures were preprocessed, testing normality and homoscedasticity assumptions. In the second phase, the presence of an overall effect considering all the alternatives was evaluated using analysis of variance and the Kruskal–Wallis test. In the third phase, Student's t-and Mann–Whitney tests were used to assess which alternatives showed statistically significant effects. The results demonstrated that the perceptual measures, namely colored transverse strips, dragon teeth markings, and colored median island, were the most effective treatments. Field tests to establish the perceptual measures' effectiveness on real roads are strongly advised. Implementation of the measures tested in the driving simulator should be carried out on similar rural highways to validate the results.

Keywords: Bicycles; Human factors; Infrastructure; Pedestrians; Performance effects of geometric design; Road user measurement and evaluation; Roadway design; Rural; Safety; Simulator studies; Traffic calming.