

How to improve yielding behavior at unsignalized crosswalks

- focusing on the shape of crosswalks and environment -

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The purpose of this study is to propose the design of crosswalks and the surrounding environment to increase the yielding behavior at unsignalized crosswalks in order to realize safe and secure residential streets for pedestrians. The following three analyses were conducted in this study. 1) A survey of yielding behavior at unsignalized pedestrian crossings with various road traffic environments. 2) Web-based questionnaire survey on visibility of unsignalized pedestrian crossings, including new designs. 3) Evaluation of the impact of unsignalized pedestrian crossings including new designs using a driving simulator. The main findings of this study are as follows. 1) The yielding behavior rate among passing vehicles at unsignalized crosswalks were higher for one-lane crosswalks than for two-lane crosswalks and was higher for crosswalks with clearer markings. 2) The factors influencing the visibility of unsignalized crosswalks were, in descending order of influence, the with or without diamond marks, the shape of the crosswalk, outside lines, and the with or without message marking on road. 3) The results of the driving simulator experiment confirmed that the conventional design of rectangular crosswalks and diamond marks had an effect of heighten visibility of crosswalk mark and deceleration of vehicles' velocity farther away from the crosswalk.