The assessment of feasibility and effectiveness of pedestrian facilities

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Abstrak

Pedestrians are frequently perceived as one of the sources of traffic congestion due to their illegal occupancy of the roadway. The goal of this study is to examine this issue by investigating the feasibility of pedestrian facilities and the effectiveness of utilizing a pedestrian bridge at a certain congested area: the north-bound traffic in Jalan Lenteng Agung, Jakarta. The feasibility of a facility is represented by an indicator of the Level of Service (LOS), i.e. the space occupied by one pedestrian, and is supported by an assessment from the pedestrian's point of view, using a questionnaire covering various aspects of the issue. The assessment of its geometric feasibility is also carried out, using the design specifications issued by the Directorate General of Bina Marga (1990) to strengthen the analysis. Meanwhile, the effectiveness of using a pedestrian bridge is represented by the ratio of pedestrian bridge users to the total number of people crossing the street. Data collection related to pedestrian flow is carried out using web cameras. The analysis shows that the LOS of all the segments of the pedestrian facilities ranges from LOS A to LOS C, in which LOS C represents the pedestrian bridge. LOS measures, supported by the geometric feasibility assessment results, signify that the facilities are not yet feasible; the speed of pedestrian flow needs to be increased using geometric improvement and the elimination of all disturbances throughout the facilities. Meanwhile, the effectiveness of using the pedestrian bridge is only 50.26% (meaning it is "quite useful"); the remaining percentage of pedestrians cross the road by navigating through the road traffic. The questionnaire results show that people are indeed aware of the importance of the safety issues related to bridge usage; however, they are reluctant to use it due to the physical barriers. The improvement generated from the analysis may help increase bridge use and its LOS, and eventually reduce the disturbance of vehicle flow.