STRATEGIES FOR ENHANCING THE OPERATIONAL PERFORMANCE OF TRANSJAKARTA BUS RAPID TRANSIT SYSTEM

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ABSTRACT

Bus Rapid Transit (BRT) system is one of the great innovations in public transit system due to its low cost and high performance. Jakarta, a capital city of Indonesia has implemented a BRT system, so-called TransJakarta since 2004. Now, it is the world's largest BRT system consisting of 12 corridors, 211 kilometers total length, and 482 buses carrying about 350,000 passengers daily. This research is aimed to understand the physical and operational characteristics of TransJakarta and also compared with Bangkok BRT. In addition, the study evaluated its performance, identified the problem, and proposed the strategies to enhance the operational performance. The ultimate goal was to improve the performance and service reliability of the TransJakarta as a rapid transit system. The field survey was conducted in January – March 2016 in Jakarta. The analysis results showed the details of problems by corridor from the aspects of operation, network, and infrastructure. The proposed strategies related to individual aspects such as the installation of a segregated lane, extra platform, passing lane, lane separation for BRT and the combination of them were assessed by using VISSIM simulation models. It is found that under the current demand pattern and system configuration it is almost impossible to achieve the desirable 25 kilometers/hour of average speed. In general, the most cost-effective enhancement strategy is the installation of a segregated lane. The significant time savings of approximately 50% were found in corridors 1, 2, and 3 from strategy combination 1, strategy combination and strategy combination, respectively. The remaining corridors may be able to realize the time savings between 22% and 35%.

KEY WORDS: BUS RAPID TRANSIT / TRANSJAKARTA / BANGKOK BRT / BRT CHARACTERISTICS / BRT PEFORMANCE / SIMULATION

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