

ABSTRACT

Yogyakarta is a city in Indonesia which is famous with the term 'city of learners' as well as 'city of tourism'. As the time goes by, Yogyakarta has been getting crowded due to the enormous growing of the population, various kinds of lively activities, as well as the increasing ownership of private transportation. All these factors have caused several traffic disruptions, such as traffic jam, traffic delay, traffic congestion, traffic boredom and road capacity decline, by which impacting on the optimization of the road's function and efficiency in providing an appropriate access for the road users.

This study aims to find out the factors affecting the performance of APILL Plengkung Gading intersection, to evaluate the performance of the intersection, and to provide alternatives and solutions for improving the performance of APILL Plengkung Gading intersection. The program used in this study was VISSIM9.0 (Student Version).

Result shows that the factors affecting the performance of APILL intersection are geometric, environmental condition, traffic volume, traffic, intersection capacity, degree of boredom, congestion length, and traffic delay. Existing condition shows that the average traffic delay is 113.30 s/skr, with level of service F which is very bad. Proposed solution scenario is by planning new timing cycle of which the result is 112.28 s/skr, road expansion of which the result is 76.69 s/skr, phase modification of which the result is 60.91 s/skr, and combination between new timing cycle, road expansion on every shoulder, and phase modification of which the result is 38.19 s/skr. The best solution to use is the combination scenario, with the average delay of intersection is 38.19 s/skr and level of service is D.

Key Words: *Analysis, Modelling, PKJI 2014, PTV, VISSIM9.0*